

**THREE ESSAYS ON THE “DARK SIDE” OF TEAMS**

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# **THREE ESSAYS ON THE “DARK SIDE” OF TEAMS**

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My dissertation consists of three essays on the “dark side” of teams. My first essay presents a model of social capital’s influence on team member conformity and deviance. First, I propose that social capital within a team facilitates the creation of team mental models. Second, I propose that the saliency of team mental models, due to the strength of an organization’s culture, the level of bureaucracy within an organization, and the level of justice from an organization, influences team members to conform to or deviate from team norms and larger normative standards (e.g. organizational norms). Lastly, I propose that conformity (deviance) increases, maintains, or decreases social capital across organizational levels.

Using 209 team members representing 51 teams in 13 organizations, my second essay helps explain the positive associations found in prior research between the level of deviance within a group and the level of deviance of individual group members. I find that individual expectations of deviant team member behavior partially mediate this relationship, while shared expectations of deviant team member behavior within a team partially mediate the relationship between the level of deviance within a team and individual expectations of deviant team member behavior. I also find that one dimension of social capital positively moderates the relationship between shared expectations and individual expectations.

Using a sample of 1,708 team members in 292 team-based establishments, my third essay examines the relationship between team member stress, and team autonomy in the form of team

decision making, team leader appointment, and team responsibility. I also examine the relationship between stress, and intrateam interdependence in the form of team member interdependency and team-based job rotation. I further examine whether the relationships between team design and stress are mediated by team member job demands and job control. I find that an increase in job demands indirectly mediates the positive relationships between team decision making and team responsibility, and stress. I also find that a decrease in job demands indirectly mediates the negative relationship between team-based job rotation and stress.

## TABLE OF CONTENTS

ACKNOWLEDGEMENTS.....	xiii
1.0 INTRODUCTION.....	1
2.0 ESSAY 1: SOCIAL CAPITAL’S INFLUENCE ON TEAM MEMBER CONFORMITY AND DEVIANCE: THE ROLE AND SALIENCY OF TEAM MENTAL MODELS.....	5
2.1 SOCIAL CAPITAL AND TEAM MENTAL MODELS.....	8
2.1.1 Structural Dimension.....	9
2.1.1.1 Network ties.....	9
2.1.1.2 Network configuration.....	10
2.1.1.3 Appropriable organization.....	12
2.1.2 Cognitive Dimension.....	12
2.1.2.1 Shared codes and language.....	13
2.1.2.2 Shared narratives.....	13
2.1.3 Relational Dimension.....	14
2.1.3.1 Trust.....	14
2.1.3.2 Norms.....	15
2.1.3.3 Obligations.....	15
2.1.3.4 Identification.....	16
2.2 TEAM MENTAL MODEL SALIENCY.....	17
2.2.1 Organizational Culture.....	18

2.2.2	Organizational Bureaucracy.....	19
2.2.3	Organizational Justice.....	20
2.3	TEAM MENTAL MODEL SALIENCY AND TEAM MEMBER CONFORMITY/DEVIANCE.....	21
2.3.1	Constructive Conformity/Deviance.....	22
2.3.2	Destructive Conformity.....	24
2.3.3	Destructive Deviance.....	25
2.4	DISCUSSION.....	26
2.4.1	Theoretical Contributions.....	26
2.4.2	Future Directions.....	28
2.4.3	Practical Implications.....	31
2.4.4	Conclusion.....	32
3.0	ESSAY 2: TEAM MEMBER DEVIANCE: THE ROLES OF EXPECTATIONS AND SOCIAL CAPITAL.....	34
3.1	THEORY AND HYPOTHESES.....	35
3.1.1	Team Deviance, Team Member Deviance, and the Mediating Roles of Individual Expectations.....	35
3.1.2	Team Deviance, Individual Expectations, and the Mediating Role of Shared Expectations.....	36
3.1.3	Shared Expectations and Social Capital.....	39
3.1.3.1	Structural dimension.....	39
3.1.3.2	Cognitive dimension.....	40
3.1.3.3	Relational dimension.....	41

3.2	METHOD.....	43
3.2.1	Data and Sample.....	43
3.2.2	Measures.....	45
3.2.2.1	Individual deviance.....	46
3.2.2.2	Team deviance.....	47
3.2.2.3	Expectations.....	48
3.2.2.4	Shared expectations.....	48
3.2.2.5	Tie strength.....	49
3.2.2.6	Appropriable organization.....	49
3.2.2.7	Shared codes and language.....	50
3.2.2.8	Shared narratives.....	50
3.2.2.9	Trust.....	51
3.2.2.10	Obligations.....	51
3.2.2.11	Identification.....	51
3.2.2.12	Individual-level control variables.....	52
3.2.2.13	Team-level control variables.....	52
3.2.3	Data Analysis.....	53
3.3	RESULTS.....	55
3.3.1	Team Deviance, Individual Deviance, and the Mediating Role of Individual Expectations.....	55
3.3.2	Team Deviance, Individual Expectations, and the Mediating Role of Shared Expectations.....	59
3.3.3	Social Capital's Moderating Effects.....	61



3.4	DISCUSSION.....	63
3.4.1	Theoretical Implications.....	63
3.4.2	Managerial Implications.....	65
3.4.3	Limitations and Directions for Future Research.....	65
3.4.4	Conclusion.....	67
3.5	FOOTNOTES.....	67
4.0	ESSAY 3: TEAM DESIGN AND STRESS: A MULTILEVEL ANALYSIS.....	69
4.1	THEORY AND HYPOTHESES.....	70
4.1.1	Job Demands-Control Model.....	70
4.1.2	Team Characteristics, Team Member Job Demands, and Team Member Job Control.....	71
4.1.3	Team Autonomy.....	72
4.1.4	Intrateam Interdependence.....	74
4.1.5	Team Member Job Demands, Team Member Job Control, and Team Member Stress.....	76
4.1.6	Team Characteristics and Team Member Stress.....	76
4.2	METHOD.....	77
4.2.1	Data and Sample.....	77
4.2.2	Measures.....	78
4.2.2.1	Stress.....	78
4.2.2.2	Team member job demands and team member job control.....	80
4.2.2.3	Team characteristics.....	81
4.2.2.4	Individual-level control variables (level1).....	81

4.2.2.5 Establishment-level control variables (level 2).....	83
4.2.2.6 Industry-level control variables (level 3).....	83
4.2.3 Data Analysis.....	84
4.3 RESULTS.....	85
4.3.1 Control Variables.....	90
4.3.2 Team Characteristics and Team Member Job Demands.....	90
4.3.3 Team Characteristics and Team Member Job Control.....	91
4.3.4 Team Member Job Demands, Team Member Job Control, and Team Member Stress.....	92
4.3.5 Team Characteristics and Team Member Stress.....	92
4.3.6 Mediating Roles of Team Member Job Demands and Team Member Job Control.....	93
4.4 DISCUSSION.....	95
4.4.1 Implications.....	95
4.4.2 Limitations and Directions for Future Research.....	98
4.4.3 Conclusion.....	100
5.0 CONCLUSION.....	101
APPENDIX. TEAM MEMBER SURVEY.....	109
BIBLIOGRAPHY.....	115

## LIST OF TABLES

Table 3.1	Descriptive Statistics and Correlations.....	56
Table 3.2	HLM Results Examining the Influence of Team Deviance and Individual Expectations of Deviant Team Member Behavior on Individual Deviance.....	58
Table 3.3	HLM Results Examining the Influence of Team Deviance, Shared Expectations of Deviant Team Member Behavior, and Social Capital on Individual Expectations of Deviant Team Member Behavior.....	60
Table 4.1	Descriptive Statistics.....	86
Table 4.2	Correlations.....	87
Table 4.3	HLM Results of the Relationships between Team Characteristics, Team Member Job Demands, Team Member Job Control, and Team Member Stress.....	88

## **LIST OF FIGURES**

Figure 2.1	Social Capital's Influence on Team Member Conformity and Deviance.....	7
Figure 3.1	Hypothesized Model.....	44

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## **1.0 INTRODUCTION**

Organizational members are often embedded within multiple collectives within an organization, especially in large organizations, that may or may not be nested within one another. For example, organizational members may be a member of a team, which is embedded within a department, which is embedded within a business unit, which is embedded within an organization. Among these collectives, organizational members are increasingly likely to be members of teams since teams are becoming a more salient feature of modern organizations (van Mierlo, Rutte, Vermunt, Kompier, & Doorewaard, 2007). In fact, Devine, Clayton, Philips, Dunford, and Melner (1999) found in a random sample of organizations that nearly half of the organizations used teams. The result has been a plethora of research focused on better understanding the inputs, mediators, and outcomes of teams (Ilgen, Hollenbeck, Johnson, & Jundt, 2005).

Research on teams has examined affect (e.g. Kelly & Barsade, 2001), commitment (e.g. Bishop & Scott, 2000), communication (e.g. Ancona & Caldwell, 1992), conflict (e.g. De Dreu, 2006), control (e.g. Barker, 1993), decision making (e.g. Hollenbeck, Ilgen, LePine, Colquitt, & Hedlund, 1998), feedback (e.g. DeShon, Kozlowski, Schmidt, Milner, & Wiechmann, 2004), learning (e.g. Edmondson, Dillon, & Roloff, 2007), design (e.g. Hackman, 1987), diversity (e.g. Dahlin, Weingart, & Hinds, 2005), network structures (e.g. Balkundi & Harrison, 2006), shared mental models (e.g. Cannon-Bowers, Salas, & Converse, 1993), social capital (e.g. van Emmerik & Brenninkmeijer, 2009), and stress (e.g. Blanc, Hox, Schaufeli, Taris, & Peeters, 2007), among many other topics.

However, similar to the emphasis the organizational behavior literature has placed on understanding desirable organizational phenomena relative to undesirable organizational phenomena (Robinson & Bennett, 1995), much of the research on teams has focused on understanding the positive aspects of teams relative to the negative aspects of teams. Much like a financial ledger that accounts for both assets and liabilities, research on teams should take a balanced perspective and account for both the assets and liabilities of teams. To help fill out the liabilities side of the “team ledger,” my dissertation consists of three essays focused on the “dark side” of teams. Specifically, my dissertation focuses on three specific aspects of teams: (1) social capital, (2) team mental models, and (3) team design.

Although research has examined the benefits of social capital at both the individual- (e.g. Burt, 2004; Coleman, 1988; Cornwell & Cornwell, 2008; Nahapiet & Ghoshal, 1998; Pil & Leana, 2009) and group-levels (e.g. Dess & Shaw, 2001; Leana & Pil, 2006; Leana & van Buren, 1999; Nahapiet & Ghoshal, 1998; Tsai & Ghoshal, 1998), social capital researchers have noted that social capital also has a “dark side” (e.g. Adler & Kwon, 2002; Graeff, 2009; Portes, 1998). Much of the research on the “dark side” of social capital has taken place within sociology (e.g. Crossley, 2008) and economics (e.g. Dasgupta, 2005). To provide a more balanced perspective of social capital within the management domain, my first essay presents a theoretical model exploring how social capital, or “the goodwill available to individuals or groups” (Adler & Kwon, 2002: 23) based upon social relationships (Bourdieu, 1986; Coleman, 1988; Putnam, 2000), influences team member conformity and deviance. First, I propose that social capital within a team facilitates the creation of team mental models. Second, I propose that the saliency of team mental models, due to the strength of an organization’s culture, the level of bureaucracy within an organization, and the level of justice from an organization, influences team members to



conform to or deviate from team norms and larger normative standards (e.g. organizational norms). Lastly, I propose that conformity (deviance) increases, maintains, or decreases social capital across organizational levels. Thus, this essay helps expand the team ledger by providing a richer picture of the negative consequences of social capital in teams.

Similar to research on social capital, much of the research on team mental models has focused on the positive aspects of team mental models (e.g. Cannon-Bowers et al., 1993; Gurtner, Tschan, Semmer, & Nagele, 2007; Lim & Klein, 2006; Mathieu, Heffner, Goodwin, Salas, & Cannon-Bowers, 2000; Waller, Gupta, & Giambatista, 2004) relative to the negative aspects of team mental models (Chou, Wang, Wang, Huang, & Cheng, 2008). To help fill this gap in the literature and to build upon prior research that has found a positive association between the level of deviance within a group and the level of deviance of individual group members (e.g. Eder & Eisenberger, 2008; Glomb & Liao, 2003; Robinson & O’Leary-Kelly, 1998), my second essay empirically examines (1) whether individual expectations of deviant team member behavior mediate this relationship, (2) whether a team mental model, in the form of shared expectations of deviant team member behavior within a team, mediates the relationship between the level of deviance within a team and individual expectations of deviant team member behavior, and (3) whether social capital’s dimensions moderate the relationship between shared expectations and individual expectations. Thus, this essay helps expand the team ledger by providing a richer picture of the negative consequences of team mental models.

Unlike social capital and team mental models, the team design literature has begun to explore the “dark side” of teams (e.g. Barker, 1993; Cooney, 2004; Langfred, 2004, 2007; Sewell, 1998). However, the team design literature has yet to explore the relationships between team design and stress. To help fill this gap in the team design literature, my third essay

examines the relationship between team member stress, and team autonomy in the form of team decision making, team leader appointment, and team responsibility. This essay also examines the relationship between stress, and intrateam interdependence in the form of team member interdependency and team-based job rotation. Lastly, this essay examines whether the relationships between team design and stress are mediated by team member job demands and job control. Thus, this essay helps expand the team ledger by providing a richer picture of the negative consequences of how teams are designed in the workplace.

In summary, my three essays share a common theme of focusing on the “dark side” of teams. My first essay presents a theoretical model exploring how social capital influences team member conformity and deviance, my second essay examines whether or not team mental models help explain the positive relationship between the level of deviance within a team and the level of deviance of individual team members, and my last essay examines how the design of a team is associated with stress via team member job demands and team member job control. Each essay is important in filling out the liabilities side of the team ledger.

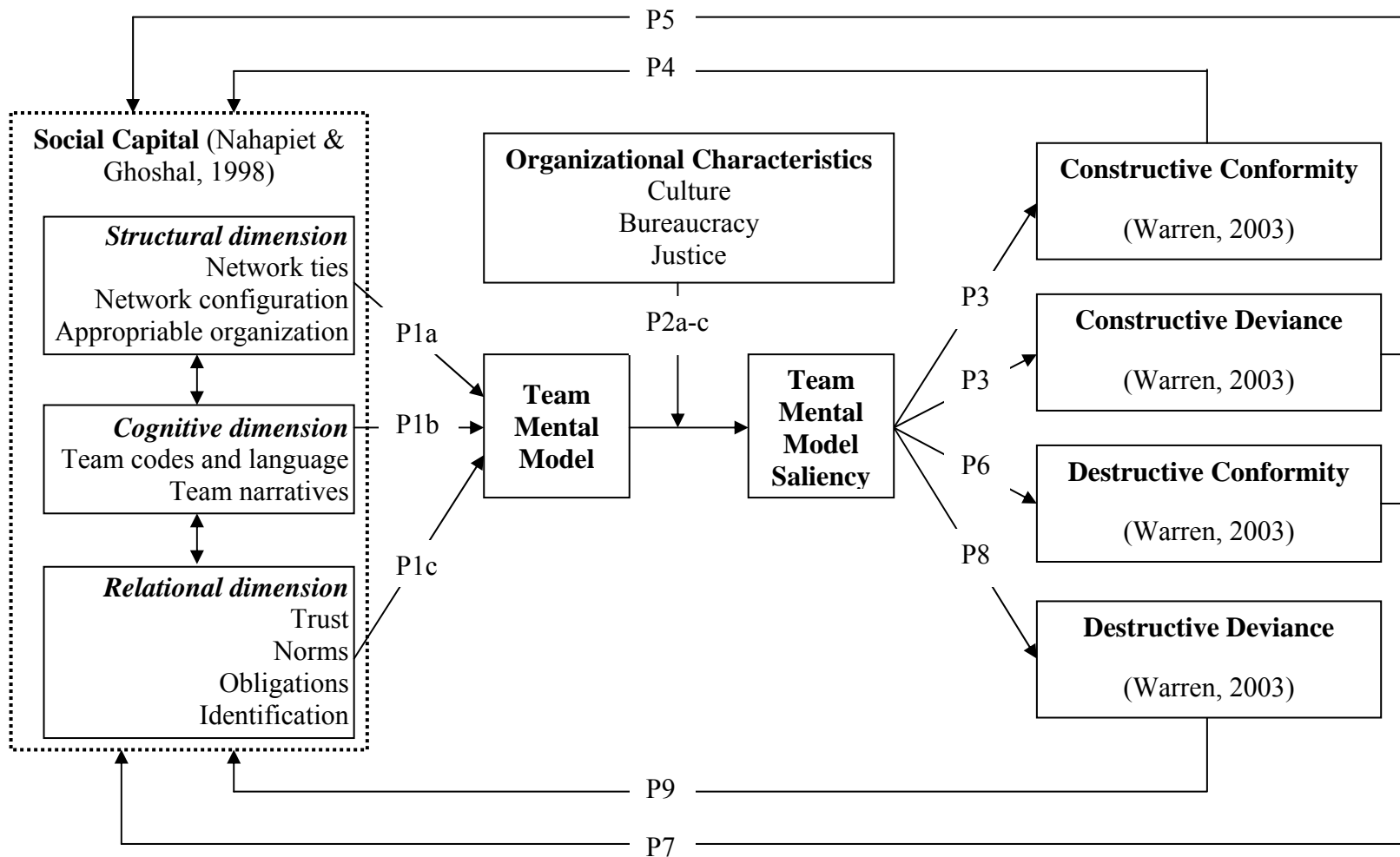
## **2.0 ESSAY 1: SOCIAL CAPITAL'S INFLUENCE ON TEAM MEMBER CONFORMITY AND DEVIANCE: THE ROLE AND SALIENCY OF TEAM MENTAL MODELS**

Social capital, defined as “the goodwill available to individuals or groups” (Adler & Kwon, 2002: 23) based upon social relationships (Bourdieu, 1986; Coleman, 1988b; Putnam, 2000), is an increasingly important topic as researchers and practitioners begin to more fully understand both the positive *and* negative consequences of social capital. Individual benefits include the creation of human capital (Coleman, 1988a; Nahapiet & Ghoshal, 1998; Pil & Leana, 2009) and the resulting human resource benefits (Burt, 2004), as well as less difficult and less costly access to specialized knowledge (Cornwell & Cornwell, 2008). Not only does social capital benefit individuals, it also benefits collectives (Dess & Shaw, 2001; Leana & van Buren, 1999; Nahapiet & Ghoshal, 1998), such as increased math and reading achievement for schools (Leana & Pil, 2006) and greater product innovation (Tsai & Ghoshal, 1998). Hence, the social capital literature suggests that the consequences of social capital are largely positive.

However, it is important to note that social capital also has a “dark side” even though researchers tend to focus on its “bright side” (Adler & Kwon, 2002; Graeff, 2009; Portes, 1998). Much of the research that has focused on the “dark side” has been located within sociology (e.g. Crossley, 2008) and economics (e.g. Dasgupta, 2005). This is problematic because collectives, such as teams, are becoming a more salient feature of organizations (van Mierlo, Rutte, Vermunt, Kompier, & Doorewaard, 2007) and these collectives may have a negative influence on

individual behavior. For instance, Robinson and O’Leary-Kelly (1998) found a positive association between the level of antisocial behavior within a group and the level of antisocial behavior of individual group members and Glomb and Liao (2003) found a positive association between the level of aggression within a group and the level of aggression of individual group members. Although these studies used theories based on social relationships of some kind, such as the social information processing perspective (Salancik & Pfeffer, 1978), social learning theory (Bandura, 1977), and the attraction-selection-attrition framework (Schneider, 1987), these studies did not examine whether the social capital embedded within those relationships may have contributed to the deviant behaviors.

To help fill this gap in the workplace deviance literature, I present a model exploring how social capital leads team members to conform to or deviate from team norms and larger normative standards (Warren, 2003) due to the role and saliency of team mental models. Figure 1.1 summarizes the model. First, I will discuss how the structural, cognitive, and relational dimensions of social capital (Nahapiet & Ghoshal, 1998) facilitate the creation of team mental models. Second, I will discuss how organizational characteristics (i.e. culture, bureaucracy, and justice) affect the saliency of team mental models. Third, I will discuss how the saliency of team mental models influences team member conformity and deviance. Finally, I will discuss how conformity (deviance) increases, maintains, or decreases social capital across organizational levels, thereby demonstrating how conformity (deviance) is self-reinforcing.



**Figure 2.1 Social Capital's Influence on Team Member Conformity and Deviance**

## **2.1 SOCIAL CAPITAL AND TEAM MENTAL MODELS**

Rouse and Morris (1986: 360) defined mental models as “mechanisms whereby humans generate descriptions of system purpose and form, explanations of system functioning and observed system states, and predictions of future system states.” This depiction of how a system operates (Tindale, Meisenhelder, Dykema-Engblade, & Hogg, 2001) helps individuals describe, explain, and predict events (Mathieu, Heffner, Goodwin, Salas, & Cannon-Bowers, 2000). In essence, mental models simplify and provide order in an often complex environment. However, individuals may or may not have similar mental models. Klimoski and Mohammed (1994) described a mental model as shared according to the degree to which a mental model is adopted by members of a team.

Teams may possess several team mental models (Cannon-Bowers, Salas, & Converse, 1993; Klimoski & Mohammed, 1994). Of the four mental models identified by Cannon-Bowers et al. (1993), the team interaction and team mental models are the two most relevant for the purposes of the proposed model because they speak directly about social influences on individual behavior. The team interaction model includes roles and responsibilities, information sources, interaction patterns, communication channels, and role interdependencies. This mental model provides expectations of how members of a team should and should not behave in terms of interacting with one another (Mathieu et al., 2000). The team mental model includes members’ knowledge, skills, abilities, preferences, and tendencies. This mental model provides a basis by which members of a team can adapt their behavior to the expected behavior of others within the team (Cannon-Bowers, Tannenbaum, Salas, & Volpe, 1995). Mathieu et al. (2000) collapsed the team interaction and team mental models into one mental model describing how well a team works together. Because most organizational phenomena are based on social relationships, and

most organizational phenomena are cognitively represented, it is likely the capital embedded within team member relationships can facilitate the creation of team mental models given individuals have a fundamental need to build and maintain strong interpersonal relationships (Baumeister & Leary, 1995).

Nahapiet and Ghoshal (1998) identified three dimensions of social capital, and their corresponding sub-dimensions. The three dimensions are structural, cognitive, and relational. I follow Nahapiet and Ghoshal's (1998) suggestion for future research by exploring how each dimension and its corresponding sub-dimensions interact synergistically, in the context of team mental models, and argue that each dimension is a basis by which the other dimensions can develop in the creation of team mental models. This is similar to Tsai and Ghoshal's (1998) investigation of the associations between social capital's three dimensions (Nahapiet & Ghoshal, 1998) as predictors of resource exchange and combination. Thus, each dimension and its corresponding sub-dimensions can be considered necessary, but not sufficient conditions on their own, in the creation of team mental models.

### **2.1.1 Structural Dimension**

The structural dimension of social capital refers to the pattern of connections between individuals and consists of network ties, network configuration, and appropriable organization (Nahapiet & Ghoshal, 1998).

**2.1.1.1 Network ties** Network ties provide the foundation for team mental models because, by definition, a mental model cannot be shared unless there is a tie between one individual and one or more other individuals. Granovetter (1973) identified ties as absent, weak, or strong as a function of amount of time, emotional intensity, intimacy, and reciprocity. The temporal aspect

of the most frequently used team in organizations, ongoing teams (Devine, Clayton, Philips, Dunford, & Melner, 1999), is likely to result in strong ties as team members spend more time with each other as compared to those outside of the team.

Although weak ties are important for transmitting certain types of information (Burt, 1992; Granovetter, 1973; Hansen, 1999), strong ties are important for transmitting information needed in the development of team mental models. First, individuals with strong ties are more likely to share information than individuals with weak ties (Reagans & McEvily, 2003). The sharing of information is important because it provides individuals the ability to compare and contrast their mental models. Moreover, individuals with strong ties are likely to have similar information as one another (Burt, 1992). The sharing of similar information between two or more individuals reinforces the reliability and validity of the information held by those individuals, providing legitimacy for a particular mental model through “strength in numbers.” Lastly, strong ties are easier to transmit complex knowledge as compared to weak ties (Hansen, 1999). The information found within mental models is often complex because the information reflects a whole system. Information about a whole system includes the interactions of a team as well as information about specific members of a team. Thus, strong network ties facilitate the creation of team mental models through information exchange.

**2.1.1.2 Network configuration** Although network ties are the structural medium through which information is transmitted in the creation of team mental models, the specific configuration of the ties can hinder or help in the creation of them. Two important features of networks are density and closure (Halpern, 2005). Density is a proportion that represents the actual number of ties compared to the theoretical maximum number of ties within a network (Degenne & Forsé, 1999). Since Burt (2000) argued density can also reflect the level of closure



within a network, I will use density and closure interchangeably. A dense network of strong ties provides greater opportunity for exchange of similar and complex information as compared to a sparse network of strong ties. A sparse network of strong ties has greater potential for conflicting information to enter the network because the individuals within the sparse network may have a larger number of relationships with those outside of the network than with those inside of the network. The diffusion of conflicting information can undermine the creation of a team mental model because it creates a lack of consensus about the team as a whole. Hence, Brass, Butterfield, and Skaggs (1998) argued higher density may increase consensus.

Closure also matters in relation to norms. Closure allows norms to develop within a network and provides enforcement power of those norms (Coleman, 1988b). An open network is problematic in this regard for several reasons. Just like information, norms of other individuals or collectives may constantly infiltrate the team. This undermines the ability of a team to develop its own norms because norms outside of the team may be in conflict with one another or may be too powerful to override. Even if norms are able to develop within an open network, a lack of closure prevents the network as a whole from effectively punishing a member who violates norms because there are power differentials between members of an open network (Coleman, 1988b). A more closed network provides greater power equalization within a network (Coleman, 1988b), which allows many members to enforce a norm rather than a few. Closure also allows for easier monitoring (Brass et al., 1998). In sum, norm development and enforcement power of norms, via closure, enables team mental models to develop because norms allow members of a team to accurately describe, explain, and predict the behavior of other members.

**2.1.1.3 Appropriable organization** Social capital is appropriable when it can be used in a variety of social contexts (Adler & Kwon, 2002; Coleman, 1988b; Nahapiet & Ghoshal, 1998). Utilizing social capital across tasks and situations in the workplace provides greater opportunities for individuals to work together. This has a two-fold effect. First, it allows individuals to gain a better understanding of how each will behave in a given situation. Second, it allows individuals a better opportunity to learn the knowledge, skills, abilities, preferences, and tendencies of other individuals. Both provide a stronger foundation in which to describe, explain, and predict the behavior of those within a team. Without appropriability, team members can only develop team mental models in the specific context in which social capital is utilized. Consequently, the appropriability of social capital allows team mental models to develop because appropriability provides greater exposure to the behavior of team members, and the subsequent cause and effect relationships that develop from observing the behavior of team members.

In sum, the strong ties, dense network, and appropriable organization often found in teams facilitate the creation of team mental models.

*Proposition 1a: The structural dimension of social capital facilitates the creation of team mental models.*

## **2.1.2 Cognitive Dimension**

The cognitive dimension of social capital refers to those resources providing shared cognition and consists of shared codes and language, and shared narratives (Nahapiet & Ghoshal, 1998). Although Nahapiet and Ghoshal (1998) noted that the cognitive dimension of social capital refers to resources providing shared cognition, I follow Kirsch, Ko, and Haney's (2010) treatment of social capital. Kirsch et al. (2010: 474) argued that the assets of social capital are

“resources that can be leveraged to facilitate the development and reinforcement of shared norms and values, a common vision, and understanding of appropriate and acceptable behaviors.”

Shared norms and values, a common vision, and understanding of appropriate and acceptable behaviors can all be considered particular types of team mental models. Hence, I argue the cognitive dimension of social capital is not equivalent to team mental models.

**2.1.2.1 Shared codes and language** Research has demonstrated that communication is vital for collectives (e.g. Innami, 1992; Katz, 1982). Shared codes and language are two important aspects of the communication process (Nahapiet & Ghoshal, 1998). Language is important because it is the mechanism by which collectives reach a consensus (Mead, 1934). Codes are important because individuals’ codes are “a repertoire of behavioral options that members of a given society recognize, respond to, and use to interact with one another” (Donnellon, Gray, & Bougon, 1986: 44). Both facilitate the transfer of knowledge because they provide a common basis in which individuals can interact with one another (Arrow, 1974; Kogut & Zander, 1992; Weber & Camerer, 2003), thereby allowing individuals to combine knowledge (Bechky, 2003; Boland & Tenkasi, 1995). When the transfer and combination of knowledge is able to occur, individuals are more likely to share common knowledge (Larson, Foster-Fishman, & Keys, 1994). The net result is a “meeting of the minds.”

**2.1.2.2 Shared narratives** Collectives in organizations are becoming more diverse (Dahlin, Weingart, & Hinds, 2005; van Knippenberg & Schippers, 2007) as organizations combine individuals who often have differing assumptions, viewpoints, and interpretations (Mohammed & Ringseis, 2001). These differing assumptions, viewpoints, and interpretations can create faultlines within collectives that can lead to conflict (Lau & Murnighan, 1998). Shared

narratives, such as stories, are a powerful means by which to develop a shared understanding among members of a collective because it can reduce the conflict and confusion that may arise among members (O'Reilly, 1989). Shared narratives help build connections among a relatively heterogeneous collection of individuals by providing a common thread among them. In turn, narratives have the power to legitimate certain ways of thinking (Brown, 1998).

In sum, shared codes and language, and shared narratives are crucial for the functioning of a team and both facilitate the creation of team mental models.

*Proposition 1b: The cognitive dimension of social capital facilitates the creation of team mental models.*

### **2.1.3 Relational Dimension**

Nahapiet and Ghoshal (1998: 244) described the relational dimension of social capital as “those assets created and leveraged through relationships,” consisting of trust, norms, obligations, and identification.

**2.1.3.1 Trust** Robinson (1996: 576) defined trust “as one’s expectations, assumptions, or beliefs about the likelihood that another’s future actions will be beneficial, favorable, or at least not detrimental to one’s interest.” Lewicki and Bunker (1996) identified three types of trust that develop over time: calculus-, knowledge-, and identification-based trust. Calculus-based trust is the first to develop and is based on both the fear of punishment for violating the trust and the rewards for maintaining the trust. Knowledge-based is based on knowing others well enough to anticipate how they will behave. “Identification-based trust develops as one both knows and predicts the other’s needs, choices, and preferences and also shares some of those same needs, choices, and preferences as one’s own” (p. 123). This progression of trust parallels the creation

of a team mental model because the description, explanation, and prediction of team member behaviors become more accurate as one develops a higher level of trust as one progresses through Lewicki and Bunker's (1996) three stages.

**2.1.3.2 Norms** Baron and Kerr (2003: 6) defined norms as “those behaviours, attitudes and perceptions that are approved of by the group and expected – and, in fact, often demanded – of its members.” These informal rules (Feldman, 1984) are often a powerful influence on members' behaviors (Baron and Kerr, 2003; Hackman, 1976). Of the various functions of norms, norms help predict behaviors and they express the values and identification of the collective (Feldman, 1984). The predictive capacity of norms provides members' with expectations of how other members of a team will behave in a given context. The values predicated by norms espouse what members of the team should also value and the subsequent identification provided by those values. Both the adoption of values and identification also provide a means by which to predict whether team members will behave in a certain fashion within a given context. However, norms are more or less powerful depending on their history. More established norms lead to more established team mental models because part of the content of team mental models is norms (Klimoski & Mohammed, 1994).

**2.1.3.3 Obligations** Obligations are based upon perceptions of reciprocity (Robinson, Kraatz, & Rousseau, 1994) and these obligations help bind team members together. Obligations are like credit slips in that individuals expect particular individuals to “repay” them some time in the future (Coleman, 1988b). In behavioral terms, members of a team expect other members to reciprocate by behaving in a similar fashion within a given context. This is very similar to norms

in that behavior may be expected or demanded (Baron & Kerr, 2003). Thus, obligations function as expectations of others behavior and are critical in the development of team mental models.

**2.1.3.4 Identification** Ashforth and Mael (1989) argued social classification serves two purposes. First, it provides mental categories of the social environment that provides order and defines others. Second, it helps individuals identify themselves with a particular collective within a social environment. Ashforth and Mael (1989: 21) labeled this second function social identification, which they defined as “the perception of oneness with or belongingness to some human aggregate.” The perception of oneness or belongingness can have a profound influence on the cognitive representations of individuals within a collective. For example, Ashforth and Kreiner (1999) argued those who perform work with a physical, social, or moral taint often develop a strong occupational or workgroup culture, which develops into work role identifications, analogous to the development of a team mental model.

The strong culture and subsequent work role identification would not be able to develop without a sufficient number of social relationships that allow information to be transferred between individuals. The diffusion of information within a team due to social identification provides credibility to the information. Indeed, information is more likely to be adopted by individuals who share the same social identity (Kane, Argote, & Levine, 2005). In essence, social identification acts as a lubricant for individuals to share information. The sharing of information allows team members to develop shared codes and language, shared narratives, trust, norms, and obligations, all of which allow members of a team to describe, explain, and predict the behavior of other members.

In sum, the trust, norms, obligations, and identification that often develop within teams facilitate the creation of team mental models.

*Proposition 1c: The relational dimension of social capital facilitates the creation of team mental models.*

In summary, the structural, cognitive, and relational dimensions of social capital, and their corresponding sub-dimensions, as identified by Nahapiet and Ghoshal (1998), facilitate the creation of team mental models. Each dimension is important for team members to effectively describe, explain, and predict the behavior of other team members.

## **2.2 TEAM MENTAL MODEL SALIENCY**

Although I have argued that the structural, cognitive, and relational dimensions of social capital (Nahapiet & Ghoshal, 1998) facilitate the creation of team mental models, I have not explored the likelihood that multiple shared mental models concerning the same expectations of team member behavior may exist within an organization. Individuals are often embedded within multiple collectives within the same organization. For example, individuals may be a member of a team, which is embedded within a department, which is embedded within a business unit, which is embedded within an organization. Each of these collectives is likely to have a shared mental model governing team member behavior that may be similar to or different from shared mental models existing at other levels in the organization. Although there are a variety of organizational characteristics that could affect the saliency team mental models to a focal team member, extant research suggests that organizational culture, organizational bureaucracy, and organizational justice would arguably be the most important organizational characteristics.

### 2.2.1 Organizational Culture

An organization's culture can be thought of as a social control system (O'Reilly, 1989). An exemplar of a social control system is concertive control (Tompkins & Cheney, 1985). Barker (1993) described concertive control as control resulting from consensus among individuals about values that are expressed in ideas, rules, or norms, which provide expectations of appropriate and inappropriate behavior. Social control systems can be thought of as strong or weak based on intensity and consensus (O'Reilly, 1989). Those organizations that have a high amount of approval/disapproval attached to expectations of behavior and have a high level of consensus among organizational members regarding expectations of behavior would be classified as having strong cultures, whereas those with a low amount of approval/disapproval attached to expectations of behavior and a low consensus among organizational members regarding expectations of behavior would be classified as having weak cultures (O'Reilly, 1989).

Weak cultures provide more opportunity for teams to develop team mental models that may or may not be congruent with shared mental models found at higher organizational levels because social control systems are developed by the teams themselves, rather than from collectives found at higher levels in the organization. For example, Rinehart, Huxley, and Robertson (1997) described teams at CAMI, a unionized joint venture between General Motors and Suzuki, as a control system that was often more powerful than the larger organizational control system. Thus, the saliency of team mental models is likely affected by an organization's culture.

*Proposition 2a: Team mental models are less salient in organizations with stronger organizational cultures and more salient in organizations with weaker organizational cultures.*



### 2.2.2 Organizational Bureaucracy

The goal of organizational bureaucracy is efficiency and this end is achieved through several means, including centralization and formalization (Perrow, 1986). Highly centralized organizations are characterized by decision making authority granted to relatively few individuals at the top of the organizational hierarchy (Pugh, Hickson, Hinings, & Turner, 1968). Courpasson (2000) argued a main idea of the Weberian tradition of governance is centralization, which is a means by which to dominate others. Domination occurs through a number of managerial methods, many of which focus on restricting the behavior of individuals. In support, Oldham and Hackman (1981) found a negative correlation between centralization and autonomy. Furthermore, Hage and Aiken (1967) found less participation was correlated with more rules and higher enforcement of rules. Among the various functions, rules provide expectations of acceptable and unacceptable behavior (Hage & Aiken, 1967; Perrow, 1986).

Less bureaucratic organizations provide greater autonomy to individuals (Oldham & Hackman, 1981) through less formalization (Hage & Aiken, 1967). With the relative lack of formal rules and enforcement, teams need to maintain order through informal rules of behavior that are informally enforced. This can be accomplished by social control systems (O'Reilly, 1989), such as those found in teams (Barker, 1993). Thus, organizational bureaucracy helps ensure that shared mental models found at higher organizational levels are more salient to a focal team member than the team's mental model.

*Proposition 2b: Team mental models are less salient in organizations with higher levels of bureaucracy and more salient in organizations with lower levels of bureaucracy.*

### 2.2.3 Organizational Justice

Limiting the autonomy of individuals through fair and consistent rules and through fair and consistent rule enforcement provides individuals a sense of procedural justice (Leventhal, 1980). Procedural justice provides legitimacy to those who are making and enforcing the rules (Tyler, 2006). Suchman (1995: 574) defined legitimacy as “a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions.” In turn, legitimacy motivates individuals to follow the rules (Tyler & Blader, 2003; Tyler, 2006). This is a powerful means by which to encourage rule following because it leads individuals to follow rules based on internal motivations rather than external motivations (Tyler & Blader, 2005). Indeed, Tyler and Blader (2005) found internal motivations to be more influential in rule following than external motivations. Research has also demonstrated that distributive and interactional justice is associated with less rule breaking (e.g. Aquino, Lewis, & Bradfield, 1999; Skarlicki & Folger, 1997). This research, coupled with the findings of Robinson and O’Leary-Kelly (1998) and Glomb and Liao (2003) mentioned earlier, suggests that procedural, distributive, and interactional justice from an organization are powerful mechanisms by which those at higher organizational levels can get those at lower organizational levels to adopt their shared mental models and that shared mental models at lower organizational levels will be more salient when individuals perceive a lack of justice from an organization.

*Proposition 2c: Team mental models are less salient in organizations with higher levels of justice and more salient in organizations with lower levels of justice.*

In summary, strong organizational cultures, organizational bureaucracy, and organizational justice lead shared mental models at higher organizational levels to be more salient to team members than a team's mental model.

### **2.3 TEAM MENTAL MODEL SALIENCY AND TEAM MEMBER CONFORMITY/DEVIANCE**

Thus far, I have argued that the structural, cognitive, and relational dimensions of social capital (Nahapiet & Ghoshal, 1998) facilitate the creation of team mental models and team mental models are more or less salient depending on organizational culture, organizational bureaucracy, and organizational justice. I will now argue that the saliency of team mental models affects team member conformity and deviance, which increase, maintain, or decrease social capital across organizational levels.

Conformity occurs when individuals change something about themselves, such as their behaviors, in order to be in closer alignment with a social norm (Baron & Kerr, 2003). Robinson and Bennett (1995: 556) defined deviance as “voluntary behavior that violates significant organizational norms and in so doing threatens the well-being of an organization, its members, or both.” However, Warren (2003) created a typology of how individuals can both conform and deviate based on reference group (e.g. team) norms and larger (e.g. organization) normative standards. Warren's (2003) typology includes constructive conformity, constructive deviance, destructive conformity, and destructive deviance. For purposes of illustration, I will use ethical standards as an example of larger normative standards in the following discussion about constructive conformity, constructive deviance, destructive conformity, and destructive deviance.

### 2.3.1 Constructive Conformity/Deviance

Constructive conformity occurs when an individual conforms to both reference group (e.g. team) norms and larger (e.g. organization) normative standards, while constructive deviance occurs when an individual deviates from reference group norms and conforms to larger normative standards (Warren, 2003). Although unethical shared mental models can be created and exist at any organizational level, most organizations are arguably more or less thoroughly ethical organizations. Pinto, Leana, and Pil (2008) characterized a thoroughly ethical organization as an organization that is not corrupt and has a low amount of corrupt individuals. For example, Fritzsche (2000) found most respondents within a high technology firm chose the ethical path when faced with an ethical dilemma.

The top management teams in these organizations are likely to share a mental model of behaving in an ethical manner and enforce this mental model through its infrastructure. Tenbrunsel, Smith-Crowe, and Umphress (2003) identified an ethical infrastructure as including communication, surveillance, and sanctioning systems, in combination with an ethical climate for ethics, respect, and justice. In support, Victor and Cullen (1988) found ethical climates focused on rules, laws, and codes. As my discussion of team mental model saliency alluded to, this type of infrastructure is more likely to be found in organizations with a strong ethical culture, a high level of bureaucracy, and a high level of organizational justice, where shared mental models found at higher organizational levels are more salient than a team's mental model. Therefore, team members are more likely to follow the ethical mental model found at higher organizational levels than ethical *or* unethical team mental models.

*Proposition 3: Team members in organizations with stronger cultures, higher levels of bureaucracy, and higher levels of justice are more likely to exhibit constructive*

*conformity and constructive deviance than team members in organizations with weaker cultures, lower levels of bureaucracy, and lower levels of justice.*

Although team members in organizations with stronger cultures, a higher level of bureaucracy, and a higher level of justice are more likely to exhibit constructive conformity and constructive deviance, the behaviors are likely to affect social capital differently across organizational levels. Organizational members often expect to have ongoing relationships with one another (Brass et al., 1998). These relationships are likely to be negatively affected if individuals act in a fashion that is not in alignment with the ethical standards of the focal collective (Brass et al., 1998; Laufer and Robertson, 1997) because it hurts the structural, cognitive, and relational dimensions of social capital (Nahapiet & Ghoshal, 1998). By conforming to the ethical standards valued by those at higher organizational levels and adopted by the team, team members are able to increase or maintain network ties, a dense network, appropriable organization, shared codes and language, shared narratives, trust, norms, obligations, and identification. This increases or maintains the information, influence, and solidarity social capital makes available to a team member (Adler & Kwon, 2002) across organizational levels.

*Proposition 4: Constructive conformity increases or maintains social capital at both the team-level and the larger normative standards-level (e.g. organization).*

However, the same cannot be said for constructive deviance. Research has demonstrated that individuals often exhibit unethical behavior due to their peers (e.g. Zey-Ferrell & Ferrell, 1982; Zey-Ferrell, Weaver, & Ferrell, 1979). Behaving in accordance with peers increases or maintains two central components of social capital: norms of reciprocity and trustworthiness (Putnam, 2000). The very act of deviating from team norms violates norms of reciprocity

because the deviant member is not reciprocating the team or its members by behaving in a similar fashion as other team members. Beyond norms of reciprocity, prior research indicates that deviant group members are disliked by other group members (see Levine & Kerr, 2007 for a review), suggesting they are no longer considered trustworthy.

Violating norms of reciprocity and trustworthiness not only damages other facets of the relational dimension of social capital, such as obligations, but other dimensions of social capital as well. For example, groups may lower the status of a deviant group member or expel the deviant group member (Levine, Moreland, & Hausmann, 2005). Both can negatively affect the structural dimension of social capital by weakening or losing network ties, decreasing density, and decreasing appropriable organization. This affects both the deviant member and the team. The deviant team member may lose access to social capital available within the team and the team loses the potential social capital available from the deviant member. However, constructive deviance is likely to have the opposite effect at the larger normative standards-level because it maintains norms of reciprocity and trustworthiness.

*Proposition 5: Constructive deviance decreases social capital at the team-level and increases or maintains social capital at the larger normative standards-level (e.g. organization).*

### **2.3.2 Destructive Conformity**

Destructive conformity occurs when individuals conform to reference group norms and deviate from larger normative standards (Warren, 2003). A variety of theoretical and empirical research suggests that organizations with weaker cultures, a lower level of bureaucracy, and a lower level of organizational justice provides teams and their members a better opportunity to develop

mental models that are incongruent with those found at higher organizational levels, and subsequently engage in behaviors that are incongruent with those behaviors expected by those at higher organizational levels. For example, others have argued that individuals in less bureaucratic organizations are more likely to act in an unethical fashion (e.g. Daboub, Rasheed, Priem, & Gray, 1995; Pinto et al., 2008). Furthermore, Rinehart et al. (1997) described teams at CAMI as “sticking together, bucking the system,” and Webb and Palmer (1998) observed teams evading surveillance, making time for themselves, and not following formal operating procedures, in an ethnographic study of a factory floor in Great Britain. These types of behaviors are likely to have an effect on social capital opposite that of constructive deviance.

*Proposition 6: Team members in organizations with weaker cultures, lower levels of bureaucracy, and lower levels of justice, are more likely to exhibit destructive conformity than team members in organizations with stronger cultures, higher levels of bureaucracy, and higher levels of justice.*

*Proposition 7: Destructive conformity increases or maintains social capital at the team-level and decreases social capital at the larger normative standards-level (e.g. organization).*

### **2.3.3 Destructive Deviance**

Destructive deviance occurs when individuals deviate from reference group norms and larger normative standards (Warren, 2003). Prior research has documented deviance occurs across a wide variety of organizational settings (e.g. Aquino et al., 1999; Bordia, Restubog, & Tang, 2008; Tepper, Moss, Lockhart, & Carr, 2007). Partially because of its prevalence in organizational settings, researchers have attempted to identify why individuals behave in a

deviant fashion. These include resistance to organizational power (Lawrence & Robinson, 2007), self-control (Marcus & Schuler, 2004), and stress (Penney & Spector, 2005), just to name a few. The prevalence of deviance across a wide variety of organizational settings and the multitude of reasons for engaging in deviance suggests destructive deviance is likely to occur regardless of an organization's strength of culture, level of bureaucracy, and level of justice. Additionally, destructive deviance is likely to decrease social capital at both the team-level and the larger normative standards-level for the same reasons as given above for constructive deviance and destructive conformity.

*Proposition 8: Destructive deviance is likely to occur irrespective of an organization's strength of culture, level of bureaucracy, and level of justice.*

*Proposition 9: Destructive deviance decreases social capital at the team-level and the larger normative standards-level (e.g. organization).*

## **2.4 DISCUSSION**

I developed a theoretical model exploring how social capital influences conforming or deviating team member behaviors via the role and saliency of team mental models that exist based on organizational characteristics (i.e. culture, bureaucracy, and justice). This model provides important insight into a relatively unexplored area within the management discipline.

### **2.4.1 Theoretical Contributions**

This model contributes to the management discipline in four major areas. First, this model indicates the structural, cognitive, and relational dimensions of social capital identified by



Nahapiet and Ghoshal (1998) facilitate the creation of team mental models, which then influence team member behavior. Thus, I identified how research on workplace deviance and team mental models can benefit from social capital research.

Second, scholars have argued that context should be looked at more closely in order to more fully understand organizational behavior (e.g. Johns, 2006), especially the “dark side” of organizational behavior (e.g. Ashforth, Gioia, Robinson, & Trevino, 2008). I argued that shared mental models at higher organizational levels will be more salient in organizations with stronger cultures, a higher level of bureaucracy, and a higher level of justice, whereas team mental models will be more salient in organizations with weaker cultures, a lower level of bureaucracy, and a lower level of justice. By looking at these organizational characteristics, I demonstrated that factors at higher levels of analysis can be helpful in more fully understanding the influential power of team mental models on team member behavior.

Third, research within the organizational behavior field frequently use the social information processing perspective (Salancik & Pfeffer, 1978) and social learning theory (Bandura, 1977) when investigating the influence of groups on individuals (e.g. Glomb & Liao, 2003; Robinson & O’Leary-Kelly, 1998). Although these theories are based on social relationships of some kind, they do not explicitly focus on how the capital found within those relationships can influence individual behavior. Moreover, they do not explicitly identify a shared mental model as a mediating mechanism. I argue social capital can be a viable, and perhaps, more important determinant of individual behavior due to the shared mental models that can result from social capital.

Lastly, my model provides much needed insight into the temporal aspect of social capital, team mental models, conformity, and deviance. Although prior research has investigated how

individual behaviors affect social capital across time within sociology (see Portes, 1998 for a review), much less attention has been paid to how individual behaviors affect social capital across time within organizational settings. By looking at this temporal dimension of social capital, one can better understand how social capital increases, is maintained, or decreases over time. This temporal aspect also provides insight into how team mental models may gain or lose their influential power. Finally, my model helps fill an important gap in the literature by attempting to answer how and why conformity and deviance is created and develops over time (Ashforth et al., 2008) through the lenses of social capital and team mental models.

#### **2.4.2. Future Directions**

I believe there are many avenues for future research based on this model. First and foremost, researchers should investigate if all the sub-dimensions of social capital identified by Nahapiet and Ghoshal (1998) are necessary, as I have argued, or if some sub-dimensions are more important than others in the creation of team mental models. For example, appropriability may not be as critical as the relational sub-dimensions of social capital. Given the wide array of social capital measures used in prior studies (e.g. Kirsch et al., 2010; Leana & Pil, 2006; Pil & Leana, 2009; Tsai & Ghoshal, 1998) and the wide array of methods used to measure team mental models (DeChurch & Mesmer-Magnus, 2010; Mohammed et al., 2010; Mohammed, Klimoski, & Rentsch, 2000), both field- and lab-based researchers have many options to measure, and subsequently, test the relationships between social capital's sub-dimensions (Nahapiet & Ghoshal, 1998) and team mental models.

Second, there may be important moderators of the social capital-team mental model relationship. One fruitful avenue may be to investigate the specific type of team. Cohen and

Bailey (1997) identified four types of teams: management teams, work teams, parallel teams, and project teams. It would seem likely management teams and work teams would develop team mental models that are much more influential in regards to member behavior because they work closely with one another on a continual basis. In contrast, parallel teams consist of individuals from different parts of an organization and project teams are temporary (Cohen & Bailey, 1997). Parallel teams may be less amenable to the creation of a team mental model because individuals in these types of teams are more likely to have diverse points of view, leading to greater conflict. Project teams may not have the necessary time to develop a team mental model, or motivation to develop a team mental model, since members know they will only work together for a finite period of time. Additionally, the increasing use of geographically distributed teams, defined as teams “whose members are not collocated and must often communicate via technology” (Hinds & Bailey, 2003: 615), adds even more complexity to the social capital-team mental model relationship and should be studied accordingly.

Third, I chose to only look at team mental model saliency within the confines of an organization. Many employees, such as professionals, may have competing loyalties to their organization and profession (Wallace, 1995) as more professionals work in organizations rather than professional practices (Adler, Kwon, & Heckscher, 2008). Although professionals may not be employed by professional practices, they often remain members of professional associations. For example, medical professionals working in hospitals may also be members of the American Medical Association, legal professionals working in a corporate legal department may also be members of the American Bar Association, and accounting professionals working in financial institutions may also be members of The American Institute of Certified Public Accountants. The community basis of professions, built upon such things as trust and obligations (Adler et al.,

2008), are central features of social capital. The social capital found within professional associations and the associations themselves serve many of the same purposes, such as governing behavior, as formal and informal control systems found in organizations. Which mental model will be more salient and subsequently more influential in governing behavior may be a fruitful avenue for future research. Prior work on professional identity (e.g. Pratt, Rockmann, & Kaufmann, 2006) and professional reference group norms (e.g. Haas & Park, 2010) may be a good starting point. This may also add a third dimension to Warren's (2003) typology of conformity and deviance. For example, professionals may be exposed to team norms, organizational norms, and professional norms, all of which may be incongruent with one another.

Lastly, individual differences may moderate the influence of team mental model saliency on conformity and deviance. For example, Vardi and Wiener (1996) argued Kohlberg's (1969) preconventional, conventional, and principled levels of moral development affect organizational misbehavior. Specifically, they argued those at the preconventional level would be more likely to engage in organizational misbehavior that benefits themselves and destructive misbehavior, those at the conventional level would be more likely to engage in organizational misbehavior that benefits the organization, and those at the principled level would be less likely to engage in any organizational misbehavior. It seems plausible those at the preconventional level would be more likely to engage in any type of conformity and deviance identified by Warren (2003) if they perceived it would benefit them in some way, whereas those at the principled level would be less influenced by any mental model and would be instead guided by internal values. However, it seems plausible that those at the conventional level would be more likely to follow the propositions set forth in this article because they are most susceptible to conformity according to Kohlberg (1969). This is only one among many individual differences (e.g. organizational

commitment, organizational identification) that need to be explored to better flesh out this model.

### **2.4.3 Practical Implications**

Social capital's influence on conformity and deviance via team mental models has a variety of practical implications across levels of analysis. Leana and van Buren (1999: 538) introduced the concept of organizational social capital, defined as "a resource reflecting the character of social relations within the organization." Importantly, they discussed how stability in employment relationships, organizational reciprocity norms, and bureaucracy and specified roles may build and maintain organizational social capital. Their argumentation suggests organizations with a stronger culture, a higher level of bureaucracy, and a higher level of justice may be better able to build and maintain organizational social capital. In turn, constructive conformity and constructive deviance would help organizations build and maintain organizational social capital, whereas destructive conformity and destructive deviance would hinder the building and maintenance of organizational social capital.

Although constructive deviance may help organizations build and maintain social capital, it may have a variety of implications at lower levels of analysis. The violation of group norms can lead to conflict between members of the group and the deviant group member. As a result, groups may attempt to exclude an individual by utilizing tactics to lower an individual's commitment level to the group and/or raise an individual's decision criterion to leave the group (Levine et al., 2005). Many of these tactics could be detrimental to the deviant group member. For example, group members may choose not to provide the adequate resources to the deviant group member for him/her to successfully perform a job. This could lead to lower performance

evaluations and subsequent termination. Thus, managers need to be cognizant of the potential negatives outcomes of constructive deviance due to the actions of group members and make necessary adjustments in order to prevent such outcomes as lower performance evaluations. One such adjustment is to make group rewards contingent upon the individual performance of group members rather than the group as a whole.

Destructive conformity can result in a variety of positive consequences, such as building and maintaining social capital available to the group and the individual, but it can also lead to a number of negative consequences. Negative consequences for the group may include greater organizational oversight of the group and decreased power of the group. Negative consequences for the individual may include lower performance evaluations, fewer opportunities for promotion, and possible termination. Fairly and consistently enforcing rules and regulations may be one avenue for management to offset the possibility of destructive conformity and destructive deviance. However, management should be aware these forms of power may increase rather than decrease deviance in the workplace (Lawrence & Robinson, 2007); suggesting managers may want to find an optimal balance of power in the workplace. This may be accomplished by involving employees in the rule creation and implementation process.

#### **2.4.4 Conclusion**

Although previous theories, such as the social information processing perspective (Salancik & Pfeffer, 1978) and social learning theory (Bandura, 1977), have examined how social relationships influence individual behavior, none of them fully explored how social capital embedded within those relationships influence individual behavior. By examining how social capital's dimensions facilitate the creation of team mental models and how organizational

characteristics affect the saliency of team mental models, researchers and practitioners can better understand how and why team member conformity and deviance occurs in the workplace.

### **3.0 ESSAY 2: TEAM MEMBER DEVIANCE: THE ROLES OF EXPECTATIONS AND SOCIAL CAPITAL**

The increasing use of teams in organizations (van Mierlo, Rutte, Vermunt, Kompier, & Dooreward, 2007) has resulted in a plethora of research focused on better understanding the inputs, mediators, and outcomes of teams (Ilgen, Hollenbeck, Johnson, & Jundt, 2005). One important outcome is that team members may influence one another to engage in deviant behaviors. Deviance is “voluntary behavior that violates significant organizational norms and in so doing threatens the well-being of an organization, its members, or both” (Robinson & Bennett 1995: 556). Indeed, prior research has found a positive association between the level of deviance within a group and the level of deviance of individual group members (e.g. Eder & Eisenberger, 2008; Glomb & Liao, 2003; Robinson & O’Leary-Kelly, 1998).

However, prior research has not focused on how expectations of group member behavior, based on past group member behavior, and how capital embedded within group member relationships, may influence a focal group member’s behaviors. The social information processing perspective (Salancik & Pfeffer, 1978) suggests that individuals use cues from their surrounding social environment to determine which behaviors are appropriate and inappropriate. These cues may often be based on the past behaviors of fellow team members. These cues can be a basis upon which team members develop expectations of fellow team member behaviors (Salancik & Pfeffer, 1978) and expectations often have a powerful influence on a focal team member’s behaviors (Baron & Kerr, 2003; Hackman, 1976). Moreover, Kirsch, Ko, and Haney



(2010) have suggested that the capital embedded within team member relationships may influence team member behavior.

By investigating the roles of expectations and social capital, or “the goodwill available to individuals or groups” based upon social relationships (Adler & Kwon, 2002; Bourdieu, 1986; Coleman, 1988; Putnam, 2000), we may be able to gain a better understanding as to why prior research has found a positive association between the level of deviance within a group and the level of deviance of individual group members (e.g. Eder & Eisenberger, 2008; Glomb & Liao, 2003; Robinson & O’Leary-Kelly, 1998). I use 209 team members representing 51 teams in 13 organizations to examine the roles of expectations and social capital on team member deviance. In so doing, I help answer Robinson and O’Leary-Kelly’s (1998) call to identify how expectations of deviant team member behavior are developed, communicated, and enforced, I help expand the relative lack of research investigating individual-level outcomes of team mental models (Chou, Wang, Wang, Huang, & Cheng, 2008), such as shared expectations of behavior, and I help answer the call of Mohammed, Ferzandi, and Hamilton (2010) to investigate the “dark side” of team mental models.

### **3.1 THEORY AND HYPOTHESES**

#### **3.1.1 Team Deviance, Team Member Deviance, and the Mediating Role of Individual Expectations**

The social information processing perspective (Salancik & Pfeffer, 1978) was used by Robinson and O’Leary-Kelly (1998) and Glomb and Liao (2003) to examine antisocial behavior and aggression (respectively) in group settings. The social information processing perspective

(Salancik & Pfeffer, 1978: 226) posits that cues from the immediate social environment lead individuals to form similar expectations of attitudes, behaviors, and beliefs and that these similar expectations lead individuals to adapt their attitudes, behaviors, and beliefs to their social context. Given individuals have a fundamental need to build and maintain strong interpersonal relationships (Baumeister & Leary, 1995), the social information processing perspective suggests that team members will focus on behavioral cues of fellow team members, form expectations of team member behaviors based on those behavioral cues, and subsequently behave in a similar fashion based on those expectations in order to build and maintain strong interpersonal relationships with their team members. Thus:

*Hypothesis 1: The level of deviance within a team is positively associated with the level of deviance of individual team members.*

*Hypothesis 2: Individual expectations of deviant team behavior mediate the positive relationship between the level of deviance within a team and the level of deviance of individual team members.*

### **3.1.2 Team Deviance, Individual Expectations, and the Mediating Role of Shared Expectations**

The social information processing perspective (Salancik & Pfeffer, 1978) focuses on how cues from the immediate social environment lead individuals to form similar expectations. This suggests that expectations may be formed at the individual- and team-levels due to team members receiving similar cues. Expectations can then be considered a collective construct because expectations can serve the same function across levels of analysis (Morgeson & Hofmann, 1999). For example, team-level expectations may influence a focal team member to

engage in specific forms of behavior just as a focal team member's own expectations may influence the focal team member to engage in specific forms of behavior. Thus, expectations may operate much like a team mental model.

Rouse and Morris (1986: 360) defined mental models as “mechanisms whereby humans generate descriptions of system purpose and form, explanations of system functioning and observed system states, and predictions of future system states.” This depiction of how a system operates helps individuals describe, explain, and predict events (Mathieu, Heffner, Goodwin, Salas, & Cannon-Bowers, 2000; Tindale, Meisenhelder, Dykema-Engblade, & Hogg, 2001), such as team member behavior. However, individuals may or may not have similar mental models. Klimoski and Mohammed (1994) described a mental model as shared according to the degree to which a mental model is adopted by members of a team. The social information processing perspective (Salancik & Pfeffer, 1978) implicitly argues that members of a team are more likely to share a mental model, in the form of shared expectations, because each team member is receiving similar cues as one another and receiving similar cues has the effect of legitimizing expectations.

Of the four team mental models identified by Cannon-Bowers, Salas, and Converse (1993), the team interaction and team mental models speak directly about cues from the immediate *social environment*, such as the behavioral cues provided by team members. In contrast, the equipment and task mental models do not speak directly about cues from the immediate *social environment*, but rather cues from the *equipment and task environments*, respectively. The team interaction model includes roles and responsibilities, information sources, interaction patterns, communication channels, and role interdependencies. This mental model provides expectations of how members of a team should and should not behave in terms of

interacting with one another (Mathieu et al., 2000). The team mental model includes members' knowledge, skills, abilities, preferences, and tendencies, providing a means by which team members can adapt their behavior to the expected behavior of others within the team (Cannon-Bowers, Tannenbaum, Salas, & Volpe, 1995). Mathieu et al. (2000) collapsed these two mental models into one mental model describing how well a team works together. How well a team works together in this paper is based on shared expectations of deviant team member behavior within a team.

There are numerous antecedents that can lead to the creation of team mental models (Mohammed, Klimoski, & Rentsch, 2000). Importantly, social influence tactics can result in the development of a shared mental model (Hastie & Pennington, 1991). For example, Hastie and Pennington (1991) found jury members used three types of social influence tactics in an attempt to reach a consensus: (1) persuasion based on facts or proper inferences from facts, (2) appeals based on values or morals, and (3) reward and punishment. Much like the social influence tactics found by Hastie and Pennington (1991), the overt or subtle cues (Pickett, Gardner, & Knowles, 2004) provided by the immediate social environment can also serve as social influence tactics (Salancik & Pfeffer, 1978). In a team context, the behavioral cues provided by team members not only facilitate the creation of individual expectations of team member behavior, but shared expectations as well, because team members are receiving similar behavioral cues. Thus:

*Hypothesis 3: The positive relationship between the level of deviance within a team and individual expectations of deviant team member behavior is mediated by shared expectations of deviant team member behavior within a team.*

### **3.1.3 Shared Expectations and Social Capital**

Although the behavioral cues of team members may lead team members to form similar expectations of behavior, which may subsequently influence individual expectations of team member behavior, the capital embedded within those relationships may make the relationship between shared and individual expectations even stronger. Nahapiet and Ghoshal (1998) identified three dimensions of social capital: structural, cognitive, and relational. Each of these dimensions provides assets that help to reinforce shared expectations of behavior (Kirsch et al., 2010).

**3.1.3.1 Structural dimension** Nahapiet and Goshal (1998) identified network ties and appropriable organization as two sub-dimensions of the structural dimension of social capital. Granovetter (1973) identified network ties as absent, weak, or strong as a function of amount of time, emotional intensity, intimacy, and reciprocity. The temporal aspect of organizational teams is likely to result in strong ties as team members spend more time with each other as compared to those outside of the team. Prior research has found that individuals with strong ties are more likely to share information than individuals with weak ties (Reagans & McEvily, 2003) and are more likely to have similar information as one another than individuals with weak ties (Burt, 1992). This research suggests that stronger ties within a team will make the relationship between shared expectations and individual expectations even stronger because individuals will be more likely to share similar information regarding expectations of team member behavior. Thus:

*Hypothesis 4a: Stronger ties within a team positively moderate the relationship between shared expectations and individual expectations of deviant team member behavior.*

Social capital is appropriable when it can be used across a variety of social contexts (Adler & Kwon, 2002; Coleman, 1988; Nahapiet & Ghoshal, 1998). The strong ties often found within teams suggest that there is a greater likelihood that team members may seek the help of one another outside of regular team activities. Team members who do help other team members outside of regular team activities provides team members a better opportunity to learn the knowledge, skills, abilities, preferences, and tendencies of other team members, which provides a stronger basis in which to form expectations of team member behavior. Without appropriability, team members can only learn the knowledge, skills, abilities, preferences, and tendencies of team members within the context of team activities. Thus:

*Hypothesis 4b: A higher level of appropriability within a team positively moderates the relationship between shared expectations and individual expectations of deviant team member behavior.*

**3.1.3.2 Cognitive dimension** The cognitive dimension of social capital consists of shared codes and language and shared narratives (Nahapiet & Ghoshal, 1998). Shared codes and language are two important aspects of the communication process (Nahapiet & Ghoshal, 1998). Language is important because it is the mechanism by which team members reach a consensus (Mead, 1934). Codes are important because individuals' codes are "a repertoire of behavioral options that members of a given society recognize, respond to, and use to interact with one another" (Donnellon, Gray, & Bougon, 1986: 44). Both facilitate the transfer of knowledge because they provide a common basis in which team members can interact with one another (Arrow, 1974; Kogut & Zander, 1992; Weber & Camerer, 2003), thereby allowing team members to combine knowledge (Bechky, 2003; Boland & Tenkasi, 1995). When the transfer and combination of knowledge is able to occur, team members are more likely to share common

knowledge (Larson, Foster-Fishman, & Keys, 1994) regarding such things as expectations of team member behavior. Thus:

*Hypothesis 5a: A higher level of shared codes and language within a team positively moderates the relationship between shared expectations and individual expectations of deviant team member behavior.*

However, teams in organizations are becoming more diverse (Dahlin, Weingart, & Hinds, 2005; van Knippenberg & Schippers, 2007) as organizations combine individuals who often have differing assumptions, viewpoints, and interpretations (Mohammed & Ringseis, 2001). These differing assumptions, viewpoints, and interpretations can create faultlines within teams that can lead to conflict (Lau & Murnighan, 1998). Shared narratives, such as stories, are a powerful means by which to develop a shared understanding among members of a team because it can reduce the conflict and confusion that may arise among team members (O'Reilly, 1989) and legitimates certain ways of thinking (Brown, 1998) regarding such things as expectations of behavior. Thus:

*Hypothesis 5b: A higher level of shared narratives within a team positively moderates the relationship between shared expectations and individual expectations of deviant team member behavior.*

**3.1.3.3 Relational dimension** Nahapiet and Ghoshal (1998) identified trust, obligations, and identification as three sub-dimensions of the relational dimension of social capital. Robinson (1996: 576) defined trust “as one’s expectations, assumptions, or beliefs about the likelihood that another’s future actions will be beneficial, favorable, or at least not detrimental to one’s interest.” Lewicki and Bunker (1996) identified three types of trust that develop over time: calculus-, knowledge-, and identification-based trust. Calculus-based trust is the first to develop and is

based on both the fear of punishment for violating the trust and the rewards for maintaining the trust. Knowledge-based is based on knowing others well enough to anticipate how they will behave. “Identification-based trust develops as one both knows and predicts the other’s needs, choices, and preferences and also shares some of those same needs, choices, and preferences as one’s own” (p. 123). This progression of trust suggests that a higher level of trust within a team will strengthen the relationship between shared expectations and individual expectations of team member behavior. Thus:

*Hypothesis 6a: A higher level of trust within a team positively moderates the relationship between shared expectations and individual expectations of deviant team member behavior.*

Obligations are based upon perceptions of reciprocity (Robinson, Kraatz, & Rousseau, 1994). They are like credit slips in that individuals expect particular individuals to “repay” them some time in the future (Coleman, 1988) and can come in a variety of forms (Murstein, Wadlin & Bond, 1987). These forms range from reciprocating a simple hello to remembering whether or not team members owe one another a favor (Murstein et al., 1987). A higher level of obligations within a team can serve as a proxy for whether or not team members should reciprocate the behavior of other team members by behaving in a similar fashion. Thus:

*Hypothesis 6b: A higher level of obligations within a team positively moderates the relationship between shared expectations and individual expectations of deviant team member behavior.*

Ashforth and Mael (1989: 21) defined social identification as “the perception of oneness with or belongingness to some human aggregate.” It is important in the diffusion of information because information is more likely to be adopted by individuals who share the same social



identity (Kane, Argote, & Levine, 2005). In essence, social identification acts as a lubricant for individuals to share information. Not only is identification important in the transfer of information, but it is also influential in the adoption of information and subsequent expectations that develop from the adoption of information (Postmes, Haslam & Swaab, 2005). Thus:

*Hypothesis 6c: A higher level of identification within a team positively moderates the relationship between shared expectations and individual expectations of deviant team member behavior.*

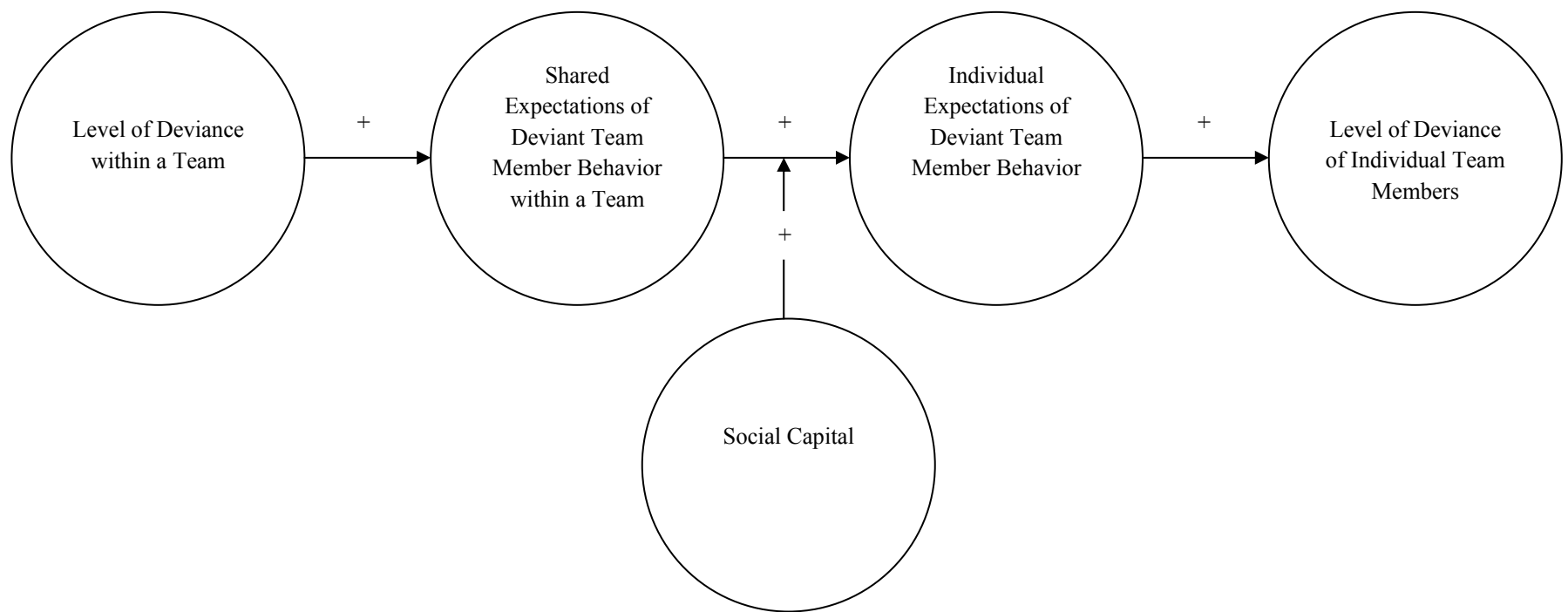
Figure 1 summarizes the hypothesized relationships.

## **3.2 METHOD**

### **3.2.1 Data and Sample**

13 organizations participated in this study. These organizations range in size from 9 to 5,000 employees, with a median of 105 employees. Two are in manufacturing industries and eleven are in service industries. Eleven of the organizations indicated that they are highly centralized (two organizations did not indicate their degree of centralization).

Organizational representatives were provided Cohen and Bailey's (1997: 241) definition of a team as a "collection of individuals who are interdependent in their tasks, who share responsibility for outcomes, who see themselves and who are seen by others as an intact social entity embedded in one or more larger social systems (for example, business unit or organization), and who manage their relationships across organizational boundaries" as a reference point to identify teams within their respective organizations. This helped ensure



**Figure 3.1 Hypothesized Model**

consistency of what was meant by team since self-generated definitions can vary both within and between organizations (Appelbaum & Batt, 1994).

Based on this initial assessment, 374 team members in 69 teams were then asked to participate in the study. It is important to note that team managers were not allowed to complete the team member survey. Team members were also informed that they should not consider the manager of the team when completing their survey. This was done to ensure that the perceptions of team managers did not unduly influence the perceptions of fellow team members. Responses were received from 245 team members (66% response rate) in 62 teams (90% response rate). Missing values, when possible, were replaced with the individual's mean for the remaining scale items. Teams with less than two team member respondents (11 teams) were removed from the final sample because at least two team member respondents were needed as a means to assess the appropriateness of aggregation. After listwise deletion, my final sample consists of 209 team members representing 51 teams in 13 organizations. The number of team members responding per team ranged from 2 to 14, with a median of 3 team member respondents (36 of the teams had at least 3 team member respondents).

### **3.2.2. Measures**

With a few exceptions, all of the constructs in Figure 1 were measured using adapted versions of existing scales. The appropriability of aggregating specific measures to the team-level can be determined by a random effects ANOVA model, ICC(1), and mean  $r_{wg}$  or  $r_{wg(j)}$  values (Bliese, 2000). A one-way random-effects ANOVA model provides a chi-square statistic and a corresponding significance level that indicates whether there is significant variation between groups. A one-way random-effects ANOVA model also provides an ICC(1) value, which ranges

from 0.00 to 1.00. An ICC(1) value above 0 indicates observations are non-independent and that group membership affects lower-level variables (Bliese, 2000). Bliese (2000) argued that ICC(1) values in field-based research generally do not exceed .30, with most falling between .05 and .20. Within-group agreement indexes indicate the degree to which group member responses are interchangeable (James, Demaree, & Wolf, 1984; James, Demaree, & Wolf, 1993). A  $r_{wg}$  index is used for single item scales and a  $r_{wg(j)}$  index is used for multiple item scales (James et al., 1984; James et al., 1993). These indexes range in value from 0.00 to 1.00 with values .70 and above indicating strong agreement among group members (LeBreton & Senter, 2008). All scales used in this study are reported in the appendix, along with their respective Cronbach alphas, chi-square statistics and significance levels, ICC(1) values, and mean  $r_{wg}$  or  $r_{wg(j)}$  values.

**3.2.2.1 Individual deviance** Bennett and Robinson's (2000) 7-item interpersonal and 12-item organizational deviance scales were combined to measure the level of individual team member deviance. Team members were asked to indicate on a 5-point Likert scale the extent to which they had engaged in interpersonally and organizationally deviant behaviors since becoming a member of the team (1 = Never to 5 = All of the time). Sample items of interpersonal deviance are "Make fun of someone at work" and "Curse at someone at work." Sample items of organizational deviance are "Take additional or longer breaks than is acceptable at your workplace" and "Intentionally work slower than you could work."

A principal component analysis with varimax rotation and Kaiser normalization was used to assess the dimensionality of the combined scale. This analysis revealed five components with all of the interpersonal deviance items loading on one component. The remaining deviance items (i.e. organizational deviance items) loaded on the four remaining components. I then split the combined scale into Bennett and Robinson's (2000) original 7-item interpersonal and 12-item

organizational deviance scales. The organizational deviance scale exhibited relatively little variance (.05), while the interpersonal deviance scale exhibited a sufficient amount of variance (.26). For these reasons, Bennett and Robinson's (2000) 7-item interpersonal deviance scale was used to measure individual team member deviance. Cronbach's  $\alpha$  for this scale is .89 and the average team member reported a relatively low level of deviance ( $M = 1.32$ ,  $SD = 0.51$ ). However, it is important to note that individual team member deviance ranged from 1.00 to 4.29.

**3.2.2.2 Team deviance.** The level of deviance within a team was obtained by averaging individual-level deviance scores across the team. One concern with this approach is the effect of common method bias because the reports of individual-level deviance and team-level deviance are from the same respondents. This is the reason why others have used the average of individual-level deviance scores across a group, excluding the focal group member, as a measure of team deviance (e.g. Eder & Eisenberger, 2008; Glomb & Liao, 2003; Robinson & O'Leary-Kelly, 1998). However, a mean  $r_{wg(j)}$  of .97 suggests that nearly perfect agreement exists among team members within each team and, subsequently, alleviated the concern of common method bias because each team member within a team provided essentially the same response to each deviance scale item. In addition to a mean  $r_{wg(j)}$  of .97, aggregation was supported by significant between-team variation in individual-level deviance ( $\chi^2(50) = 212.77$ ,  $p = .000$ ) and an ICC(1) of .48. These values also suggest that this approach provides a more reliable estimate of the level of deviance within a team. The level of deviance within a team remains unbiased because it properly accounts for the non-independence of team member behaviors. The average team had a relatively low level of deviance ( $M = 1.29$ ,  $SD = 0.43$ ).

**3.2.2.3 Expectations** Bennett and Robinson's (2000) 7-item interpersonal deviance scale was also used to measure expectations of deviant team member behaviors. Team members were asked to indicate on a 5-point Likert scale, based on prior experience with their team members, the extent to which they expected their team members to engage in each type of deviant behavior in the future (1 = Never to 5 = All of the time). Cronbach's  $\alpha$  for this scale is .86 and the average team member reported a relatively low level of expectations of deviant team member behavior ( $M = 1.48$ ,  $SD = 0.59$ ). Although expectations may be highly correlated with deviance due to the similar construction of the scales, it is likely they differ in value for two reasons. First, although the individual scale items were the same, team members were provided a different set of instructions. Specifically, the expectations questions were concerned with the behavior of other team members whereas the deviance questions were concerned with a respondent's own behaviors. Second, the expectations and deviance questions were measured at separate places in the questionnaire. In support of the previous argument, team members indicated they exhibited less deviance than they expected their team members to exhibit in the future (1.32 vs. 1.48).

**3.2.2.4 Shared expectations** Shared expectations were measured by the degree of separation within a team. Separation is characterized as "composition of differences in (lateral) position or opinion among unit members, primarily of value, belief, or attitude" (Harrison & Klein, 2007: 1203). Harrison and Klein (2007) indicated that within-unit standard deviation or mean Euclidean distance can be used to measure separation and this approach has been used by others (e.g. Chou et al., 2008). Due to their conceptual and mathematical similarities, I use within-unit standard deviation of individual expectations of deviant team member behavior to measure shared expectations of deviant team member behavior within a team because researchers are likely more familiar with within-unit standard deviation (Harrison & Klein, 2007). Because

individual expectations of behavior were measured on a five point scale, the maximum within-unit standard deviation is 2 (see Harrison & Klein, 2007 for a full review). The average team had a relatively high degree of shared expectations ( $M = 0.31$ ,  $SD = 0.23$ )

**3.2.2.5 Tie strength** Individual-level tie strength was measured using adapted versions of Reagan and McEvily's (2003) measures of emotional closeness and communication frequency. Unlike Reagan and McEvily's (2003) procedure of asking about ties with specific individuals, team members were only asked about their team members on average in order to maintain anonymity of team members. Team members were asked to indicate, on a 4-point Likert scale, on average how close they are with their fellow team members (1 = Distant to 4 = Especially close), and how often they talk to their team members on a regular basis (1 = Less often to 4 = Daily). Following prior research (e.g. Hansen, 1999; Pil & Leana, 2009), these two measures were averaged to obtain an individual-level measure of tie strength. To obtain a team-level measure of tie strength, I followed the approach of Pil and Leana (2009) and averaged the individual-level measures of tie strength across the team. Aggregation was supported by significant between-team variation in individual-level tie strength ( $\chi^2(50) = 69.89$ ,  $p = .033$ ), an ICC(1) of .09, and a mean  $r_{wg(j)}$  of .81. The average team had a relatively high level of tie strength ( $M = 3.24$ ,  $SD = 0.31$ ).

**3.2.2.6 Appropriable organization** Appropriable organization was measured by asking team members to indicate on a 4-point Likert scale how often they use their team members to help them get things done outside of regular team activities (1 = Less often to 4 = Daily). The individual-level values of appropriable organization were averaged across the team in order to obtain a team-level value of appropriable organization. Although appropriable organization had a

mean  $r_{wg}$  of .49, it demonstrated significant between-team variation ( $\chi^2(50) = 94.20, p = .000$ ) and had an ICC(1) of .19. The latter two measures justified aggregation. The average team had a relatively moderate level of appropriable organization ( $M = 1.96, SD = 0.78$ ).

**3.2.2.7 Shared codes and language** Shares codes and language were measured using an adapted version of Collins and Smith's (2006) six item shared codes and language scale (1 = Strongly disagree to 5 = Strongly agree). Sample items include "I am always on the same page with team members when we talk about work" and "I have trouble understanding team members when we work together" (reverse scored). Cronbach's  $\alpha$  for this scale is .71. The individual-level values of shared codes and language were then averaged across the team in order to obtain a team-level value of shared codes and language. Aggregation was supported by significant between-team variation ( $\chi^2(50) = 84.49, p = .002$ ), an ICC(1) of .15 and a mean  $r_{wg(j)}$  of .88. The average team had a relatively high level of shared codes and language ( $M = 4.05, SD = 0.34$ ).

**3.2.2.8 Shared narratives** Shared narratives were measured by a four item scale asking team members to indicate on a 5-point Likert scale the extent to which they disagree or agree with the following statements (1 = Strongly disagree to 5 = Strongly agree): "I often talk about common experiences with team members," "I often talk about common experiences the team had with new team members," "I often talk about common experiences with team members when I am trying to resolve a conflict with other team members," and "I often talk about common experiences with team members when I am trying to solve a problem." Cronbach's  $\alpha$  for this scale is .83. The individual-level values of shared narratives were averaged across the team in order to obtain a team-level value of shared narratives. Aggregation was supported by significant between-team variation in shared narratives ( $\chi^2(50) = 72.63, p = .020$ ), an ICC(1) of .10, and a



mean  $r_{wg(j)}$  of .89. The average team had a relatively high level of shared narratives ( $M = 4.02$ ,  $SD = 0.37$ ).

**3.2.2.9 Trust** Trust was measured using an adapted version of Jehn and Mannix's (2001) three item scale of trust (1 = Strongly disagree to 5 = Strongly agree). A sample item is "I trust my team members." Cronbach's  $\alpha$  for this scale is .89. The individual-level values of trust were averaged across the team in order to obtain a team-level value of trust. Aggregation was supported by significant between-team variation in trust ( $\chi^2(50) = 111.84$ ,  $p = .000$ ), an ICC(1) of .23, and a mean  $r_{wg(j)}$  of .86. The average team had a relatively high level of trust ( $M = 4.10$ ,  $SD = 0.52$ ).

**3.2.2.10 Obligations** Obligations were measured using an adapted version of Murstein et al.'s (1987) 21-item revised exchange-orientation scale (1 = Strongly disagree to 5 = Strongly agree). The scale was reduced to the seven most relevant items for a team. Sample items were "I usually do not forget if I owe a team member a favor or if a team member owes me a favor" and "I don't like team members who don't fulfill their obligations to me." Cronbach's  $\alpha$  for this scale is .68. The individual-level values of obligations were averaged across the team in order to obtain a team-level value of obligations. Aggregation was supported by significant between-team variation in obligations ( $\chi^2(50) = 98.11$ ,  $p = .000$ ), an ICC(1) of .19, and a mean  $r_{wg(j)}$  of .84. The average team had a relatively moderate level of obligations ( $M = 2.89$ ,  $SD = 0.41$ ).

**3.2.2.11 Identification** Identification was measured using an adapted version of van der Vegt, Van de Vliert, and Oosterhof (2003)'s four-item scale of team identification (1 = Strongly disagree to 5 = Strongly agree). Sample items were "I strongly identify with the other members of my team" and "I dislike being a member of this team" (reverse scored). Cronbach's  $\alpha$  for this

scale is .75. The individual-level values of team identification were averaged across the team in order to obtain a team-level value of team identification. Aggregation was supported by significant between-team variation in identification ( $\chi^2(50) = 87.87, p = .001$ ), an ICC(1) of .16, and a mean  $r_{wg(j)}$  of .90. The average team had a relatively high level of identification ( $M = 4.03, SD = 0.35$ ).

**3.2.2.12 Individual-level control variables** Similar to others (e.g. Eder & Eisenberger, 2008; Glomb & Liao, 2003; Robinson and O’Leary-Kelly, 1998), I control for a variety of demographic and job-related characteristics, including gender (reference group is male), age (1 = Less than 20 to 6 = 60+), and organizational tenure (1 = Less than 1 year to 6 = 21+ years). Lau, Au, and Ho’s (2003) review of the workplace deviance literature indicates that these characteristics are all associated with various forms of workplace deviance, and therefore need to be included. I also control for education (1 = Some high school to 6 = Doctoral degree or equivalent) because prior research has indicated an individual’s level of education is associated with workplace deviance (e.g. Robinson & O’Leary-Kelly, 1998), and team tenure (1 = Less than 1 month to 6 = More than 2 years) because Mohammed et al.’s (2010) review of the team mental model literature indicated team tenure is positively associated with team mental models. The use of categorical variables has been by others studying team mental models (e.g. Rentsch & Klimoski, 2001) and this approach is used in this study to ensure anonymity of respondents.

**3.2.2.13 Team-level control variables** I control for two team-level characteristics. First, I control for team size because prior research has found a negative association between team size and team mental models (e.g. Rentsch & Klimoski, 2001). Teams ranged in size from 2 to 19 members, with a mean team size of 6 members. Second, intrateam conflict is controlled for using

an adapted version of Jehn's (1995) 8-item intragroup conflict scale measuring task and relationship conflict (1 = None to 5 = A lot) because it is likely that a higher level of intrateam conflict signifies a lack of cognitive convergence within a team. Sample items of the relationship conflict scale are "How much friction is there among members in your team?" and "How much are personality conflicts evident in your team?" Sample items of the task conflict scale are "How often do people in your team disagree about opinions regarding the work to be done?" and "How frequently are there conflicts about ideas in your team?" Cronbach's  $\alpha$  for this scale is .91. The individual-level values of intrateam conflict were averaged across the team in order to obtain a team-level value of intrateam conflict. Aggregation was supported by significant between-team variation in intrateam conflict ( $\chi^2(50) = 82.62, p = .003$ ), an ICC(1) of .15, and a mean  $r_{wg(j)}$  of .92. The average team had a relatively low level of conflict ( $M = 2.02, SD = 0.36$ ).

### **3.2.3 Data Analysis**

Due to the nested nature of the data (i.e. team members nested within teams), I use hierarchical linear modeling (Raudenbush & Bryk, 2002). Unlike traditional regression analysis, multilevel techniques permit the decomposition of variance in the outcome variable across the individual- (level-1) and team-levels (level-2). A "null" model (equivalent to a one-way random-effects ANOVA model) suggested that 52% of the variance in individual deviance occurred at the individual-level (i.e. at level-1) and 48% occurred at the team-level (i.e. at level-2). Similarly, a "null" model suggested that 64% of the variance in individual expectations of deviant team member behavior occurred at the individual-level and 36% occurred at the team-level.

The key difference between ordinary least squares regression and hierarchical linear modeling is that hierarchical linear modeling is a series of regression equations at multiple levels

of analysis. In hierarchical linear modeling, the level-1 intercept and predictors are treated as level-2 outcomes and each regression equation across levels of analysis has its own error term. The level-2 intercept equation's random error term was always set as random and all level-2 slope random error terms were set as fixed in all models. To properly compare the fit of each model using a likelihood ratio test, I needed to account for both fixed and random effects. The deviance measure obtained with restricted maximum likelihood can be used to compare models that differ only in random effects, whereas the deviance measure obtained with full maximum likelihood can be used to compare models that differ in both fixed and random effects (Raudenbush & Bryk, 2002). Thus, the deviance measure obtained with full maximum likelihood was used to compare models.

Results for fixed effects with robust standard errors are reported for all models. Prior to analysis, all variables were grand-mean centered for two reasons. First, mean centering simplifies interpretation of the results. Second, and more importantly, all variables were grand-mean centered because the focus of this study is how individual- and team-level variables affect team member deviance and team member expectations relative to all other team members. This is in contrast to group-mean centering, which focuses on how individual- and team-level variables affect team member deviance and team member expectations relative to other members within the same team.

My theory development suggests that the relationship between team deviance and individual deviance is mediated by individual expectations of deviant team member behavior. This is a cross-level mediation – lower-level mediator model (Mathieu & Taylor, 2007). My theory development also suggests that the relationship between team deviance and individual expectations of deviant team member behavior is mediated by shared expectations of deviant

team member behavior within a team. This is a cross-level mediation – upper-level mediator model (Mathieu & Taylor, 2007). Rather than following Mathieu and Taylor’s (2007) proposed set of guidelines to test for mediation in these types of models, which mirrors those set forth by Baron and Kenny (1986), I follow Zhao, Lynch, and Chen’s (2010) guidelines because recent research suggests that Baron and Kenny’s (1986) logic for testing whether a third variable mediates the relationship between an independent and dependent variable is flawed (see Zhao et al., 2010 for a full review). Consequently, Zhao et al. (2010) argued that the only requirement to demonstrate mediation is a significant “indirect effect” by the Sobel test, or a more powerful bootstrap test (Preacher & Hayes, 2004, 2008).<sup>1</sup>

### **3.3 RESULTS**

Table 3.1 presents the descriptive statistics and correlations for all of the variables used in this study. Individual-level variables were correlated at the individual level. Likewise, team-level variables were correlated at the team level. The correlations between individual- and team-level variables reflect the assignment of team-level values at the individual level.

#### **3.3.1 Team Deviance, Individual Deviance, and the Mediating Role of Individual Expectations**

Table 3.2 presents the results of the relationships between team deviance, individual deviance, and the mediating role of individual expectations. Model 1 includes only the control variables and was not a significant improvement over the “null” model ( $\chi^2(7) = 10.30, p = .171$ ). Model 2

**Table 3.1 Descriptive Statistics and Correlations**

Variable	M	SD	1	2	3	4	5	6	7	8	9	10
1. Individual deviance	1.32	0.51										
2. Expectations	1.48	0.59	.79**									
3. Gender (female)	0.28	0.45	-.19**	-.23**								
4. Age	3.60	1.07	-.10	-.08	-.02							
5. Education	3.29	1.02	-.12	-.02	.15*	-.10						
6. Org. tenure	3.14	1.41	.09	.16*	-.05	.22**	-.00					
7. Team tenure	5.18	1.30	-.02	.08	-.05	.10	.13	.64**				
8. Team deviance	1.29	0.43	.76**	.64**	-.20**	-.01	-.21**	.06	-.04			
9. Shared expectations	0.31	0.23	.32**	.46**	-.31**	.06	-.07	.16*	.19**	.38**		
10. Tie strength	3.24	0.31	.21**	.12	.04	-.11	-.10	-.10	-.06	.24	-.06	
11. Appropriate organization	1.96	0.78	.09	.11	-.21**	-.04	.14*	-.03	.09	.08	.07	.47**
12. Codes and language	4.05	0.34	-.21**	-.22**	.06	-.02	.36**	.12	.11	-.38**	-.27	.12
13. Narratives	4.02	0.37	-.04	-.05	.03	.03	.22**	.07	.19**	-.10	-.06	.24
14. Trust	4.10	0.52	-.05	-.07	.24**	-.03	.27**	.08	.08	-.01	-.17	.35*
15. Obligations	2.89	0.41	.10	.11	-.24**	-.09	.05	-.07	.07	.11	.16	-.08
16. Identification	4.03	0.35	-.06	-.09	.11	.03	.28**	.09	.16*	-.07	-.17	.19
17. Team size	5.78	3.97	.09	.07	-.16*	-.01	-.16*	.03	.11	.04	.36**	-.05
18. Intrateam conflict	2.02	0.36	-.00	.09	-.33**	.21**	-.19**	-.01	.03	.04	.43**	-.21

\*  $p \leq .05$ .\*\*  $p \leq .01$ .

**Table 3.1 (continued)**

Variable	M	SD	11	12	13	14	15	16	17
12. Codes and language	4.05	0.34	.21						
13. Narratives	4.02	0.37	.40**	.40**					
14. Trust	4.10	0.52	.37**	.30*	.33*				
15. Obligations	2.89	0.41	.16	.16	.16	.01			
16. Identification	4.03	0.35	.35*	.52**	.48**	.55**	.11		
17. Team size	5.78	3.97	-.04	-.18	-.04	-.17	.03	-.17	
18. Intrateam conflict	2.02	0.36	.06	-.19	.02	-.44**	.21	-.16	.30*

\*  $p \leq .05$ .

\*\*  $p \leq .01$ .

**Table 3.2<sup>a</sup> HLM Results Examining the Influence of Team Deviance and Individual Expectations of Deviant Team Member Behavior on Individual Deviance**

Variables	Model 1		Model 2		Model 3	
<i>Individual Level</i>						
Control Variables						
Gender (female)	-0.14*	(0.07)	-0.04	(0.04)	0.01	(0.03)
Age	-0.06**	(0.02)	-0.05**	(0.01)	-0.02*	(0.01)
Education	0.00	(0.04)	0.02	(0.01)	-0.02	(0.01)
Org. tenure	0.06*	(0.02)	0.04*	(0.02)	0.01	(0.01)
Team tenure	-0.04	(0.03)	-0.02	(0.02)	-0.02*	(0.01)
Mediating Variable						
Expectations					0.47**	(0.06)
<i>Team Level</i>						
Control Variables						
Team size	0.00	(0.01)	-0.00	(0.00)	0.00	(0.00)
Intrateam conflict	-0.01	(0.15)	0.03	(0.02)	-0.07	(0.03)
Independent Variables						
Team deviance			0.99**	(0.03)	0.53**	(0.07)
$\chi^2$	10.30 <sup>b</sup>		129.51** <sup>b</sup>		93.26** <sup>b</sup>	

<sup>a</sup>All variables are grand-mean centered. Standard errors are reported in parentheses.

<sup>b</sup>Compared to previous model.

\*  $p \leq .05$ .

\*\*  $p \leq .01$ .

tests the relationship between team deviance and individual deviance. This model was a significant improvement over Model 1 ( $\chi^2(1) = 129.51$ ,  $p = .000$ ). Team deviance was found to be positively and significantly associated with individual deviance ( $\gamma = 0.99$ ,  $SE = 0.03$ ,  $p = .000$ ), supporting hypothesis 1. This model explained 24% of the individual-level variance in team member deviance.

Individual expectations were included in model 3 to assess mediation. This model was a significant improvement over model 2 ( $\chi^2(1) = 93.26$ ,  $p = .000$ ). Individual expectations of deviant team member behavior was found to be positively and significantly associated with



individual deviance ( $\gamma = 0.47$ ,  $SE = 0.06$ ,  $p = .000$ ). Although the significance level did not change for team deviance when individual expectations of deviant team member behavior was added in model 3, individual expectations was found to mediate the positive relationship between team deviance and individual deviance (Sobel = 7.70,  $p = .000$ ). This analysis indicated complementary mediation, in which individual expectations, as a mediator, was identified consistent with the hypothesized theoretical framework, but the analysis also suggests the likelihood of an omitted mediator in the direct path between team deviance and individual deviance (Zhao et al., 2010). Thus, hypothesis 2 was supported. This model explained 51% of the individual-level variance in team member deviance.

### **3.3.2 Team Deviance, Individual Expectations, and the Mediating Role of Shared Expectations**

Table 3.3 presents the results of the relationships between team deviance, individual expectations of deviant team member behavior, and the mediating role of shared expectations of deviant team member behavior within a team. Individual-level control variable coefficients and standard errors are not listed to conserve space. Model 1 tested whether or not there was a significant relationship between team deviance and individual expectations. This model was a significant improvement over the “null” model ( $\chi^2(8) = 108.95$ ,  $p = .000$ ). Team deviance was found to be positively and significantly associated with individual expectations ( $\gamma = 0.98$ ,  $SE = 0.04$ ,  $p = .000$ ). This model explained 19% of the variance in individual expectations of deviant team member behavior.

**Table 3.3<sup>ab</sup> HLM Results Examining the Influence of Team Deviance, Shared Expectations of Deviant Team Member Behavior, and Social Capital on Individual Expectations of Deviant Team Member Behavior**

Variables	Model 1		Model 2		Model 3	
<i>Team Level</i>						
Control Variables						
Team size	-0.01	(0.00)	-0.01**	(0.00)	-0.01*	(0.00)
Intrateam conflict	0.21**	(0.05)	0.10*	(0.04)	0.10	(0.07)
Tie strength					0.21	(0.13)
Appropriable organization					-0.03	(0.04)
Codes and language					-0.05	(0.17)
Shared narratives					0.02	(0.10)
Trust					-0.13	(0.07)
Obligations					-0.07	(0.11)
Identification					0.06	(0.15)
Independent Variables						
Team deviance	0.98**	(0.04)	0.86**	(0.05)	0.80**	(0.07)
Mediating Variable						
Shared expectations			0.57**	(0.09)	1.92	(1.54)
Moderator Variables (of Shared expectations)						
Tie strength					-0.22	(0.36)
Appropriable organization					0.08	(0.11)
Codes and language					-0.33	(0.43)
Shared narratives					-0.25	(0.28)
Trust					0.57*	(0.23)
Obligations					0.24	(0.29)
Identification					-0.37	(0.43)
$\chi^2$	108.95** <sup>c</sup>		9.44** <sup>c</sup>		4.54 <sup>c</sup>	

<sup>a</sup>All variables are grand-mean centered. Standard errors are reported in parentheses.

<sup>b</sup>Individual-level control variables are not listed to conserve space.

<sup>c</sup>Compared to previous model.

\*  $p \leq .05$ .

\*\*  $p \leq .01$ .

Shared expectations were added in model 2 to assess mediation. This model was found to be a significant improvement over model 1 ( $\chi^2(1) = 9.44, p = .003$ ). Shared expectations was found to be positively and significantly associated with individual expectations ( $\gamma = 0.57$ ,  $SE = 0.09, p = .000$ ). Although the significance level did not change for team deviance when shared expectations were added in model 2, the Sobel test indicated that shared expectations mediated the positive relationship between team deviance and individual expectations (Sobel = 2.78,  $p = .005$ ). This analysis indicated complementary mediation, in which shared expectations, as a mediator, was identified consistent with the hypothesized theoretical framework, but the analysis also suggests the likelihood of an omitted mediator in the direct path between team deviance and individual expectations (Zhao et al., 2010). Thus, hypothesis 3 was supported. This model explained 22% of the variance in individual expectations of deviant team member behavior. These results are important because they suggest that the level of deviance within a team may influence shared expectations of deviant team member behavior within a team, which may influence individual expectations of deviant team member behavior, which then may influence the level of deviance of individual team members.

### **3.3.3 Social Capital's Moderating Effects**

Model 3 tests the moderating influence of social capital on the relationship between shared expectations and individual expectations. Although this model was not a significant improvement over model 2 ( $\chi^2(14) = 4.54, p \geq .10$ ), a significant moderating result was found. The first group of variables concerns the structural dimension of social capital. An increase in team tie strength was found to negatively, but not significantly, moderate the relationship between shared expectations and individual expectations ( $\gamma = -0.22, SE = 0.36, p = .554$ ),

providing no support for hypothesis 4a. Likewise, appropriable organization was found to positively, but not significantly, moderate the relationship between shared expectations and individual expectations ( $\gamma = 0.08$ ,  $SE = 0.11$ ,  $p = .491$ ), providing no support for hypothesis 4b. These results suggest that the structural dimension of social capital does not affect the relationship between shared and individual expectations.

The second group of variables concerns the cognitive dimension of social capital. An increase in shared codes and language was found to negatively, but not significantly, moderate the relationship between shared and individual expectations ( $\gamma = -0.33$ ,  $SE = 0.43$ ,  $p = .451$ ), providing no support for hypothesis 5a. Shared narratives were also found to negatively, but not significantly, moderate the relationship between shared expectations and individual expectations ( $\gamma = -0.25$ ,  $SE = 0.28$ ,  $p = .382$ ), providing no support for hypothesis 5b. These results suggest that the cognitive dimension of social capital does not affect the relationship between shared and individual expectations.

The last group of variables concerns the relational dimension of social capital. An increase in trust was found to positively and significantly moderate the relationship between shared and individual expectations ( $\gamma = 0.57$ ,  $SE = 0.23$ ,  $p = .017$ ), providing support for hypothesis 6a. Obligations were found to positively, but not significantly, moderate the relationship between shared expectations and individual expectations ( $\gamma = 0.24$ ,  $SE = 0.29$ ,  $p = .416$ ). Identification was found to negatively, but not significantly, moderate the relationship between shared expectations and individual expectations ( $\gamma = -0.37$ ,  $SE = 0.43$ ,  $p = .401$ ). Thus, hypotheses 6b and 6c were not supported. These results suggest that a stronger relational dimension of social capital within a team, in the form of trust, increases the strength of the relationship between shared expectations and individual expectations.<sup>2</sup>

### **3.4 DISCUSSION**

By examining the roles of individual and shared expectations of deviant team member behavior, as well as social capital within a team, this study helps to add a richer picture as to why prior research has found a positive association between the level of deviance within a group and the level of deviance of individual group members (e.g. Eder & Eisenberger, 2008; Glomb & Liao, 2003; Robinson & O’Leary-Kelly, 1998). Accordingly, this study has a variety of theoretical and managerial implications.

#### **3.4.1 Theoretical Implications**

First, this study not only empirically validates key arguments of the social information processing perspective (Salancik & Pfeffer, 1978), but also helps answer Robinson and O’Leary-Kelly’s (1998) call to identify how expectations of deviant team member behavior are developed, communicated, and enforced. The results of this study suggest that expectations of deviant team member behavior are developed by the deviant behavioral cues provided by fellow team members. Specifically, this study suggests that the deviant behavior of team members lead individual team members to form shared expectations of deviant team member behavior within the team, these shared expectations lead individuals to form their own expectations of deviant team member behavior, and their own expectations lead them to behave in a deviant fashion. These results suggest that expectations of behavior may also play key roles in explaining other forms of team member behaviors, such as organizational citizenship behaviors. Thus, future

research should examine the role of expectations as drivers of various forms of team member behaviors.

Second, the results of this study suggest that the capital, in the form of trust, embedded within team member relationships can strengthen the association between shared and individual expectations of deviant team member behavior. This suggests that social capital has a “dark side” in addition to a “bright side.” Although researchers tend to focus on its “bright side” (Adler & Kwon, 2002; Graeff, 2009; Portes, 1998), this study indicates greater research attention should be paid to the “dark side” because social capital could increase rather than decrease undesirable behaviors in the workplace. Accordingly, future research might take a balanced perspective on social capital and study both the negative and positive consequences of social capital in the workplace.

Lastly, this study helped expand the relative lack of research investigating individual-level outcomes of shared mental models (Chou et al., 2008), such as shared expectations of team member behavior. Just as Chou et al. (2008) found a positive association between a shared mental model, in the form of shared work values, and team member performance in Taiwanese corporate teams, the results of this study suggests that a shared mental model, in the form of shared expectations of deviant team member behavior, are associated with negative group member performance (i.e. team member deviance) by influencing individual expectations. Thus, this study also helped answer Mohammed et al.’s (2010) call for research that examines the “dark side” of team mental models by indicating team mental models do indeed have a “dark side” that both researchers and practitioners should be aware of when investigating or utilizing teams in the workplace.

### **3.4.2 Managerial Implications**

The results of this study have a variety of managerial implications. First and foremost, this study indicates managers should attempt to manage both shared and individual expectations of team member behavior in the workplace. Prior research suggests that this may be accomplished in three ways. First, helping to create a strong culture could help manage expectations because a strong culture can serve as a social control system (O'Reilly, 1989). Second, increasing organizational bureaucracy may help manage expectations through a greater number of rules (Hage & Aiken, 1967; Perrow, 1986). Lastly, managers could manage expectations by treating team members fairly because it provides the manager legitimacy in the eyes of followers (Tyler, 2006). Each of these approaches may be viable avenues for managers to manage behavioral expectations of team members, and subsequently, help reduce deviant team member behaviors in the workplace.

However, the results of this study also suggest that managers may want to manage social capital within the team to help reduce deviant team member behaviors. Managers may want to focus their attention on managing how much team members trust each other because this study demonstrates this dimension of social capital may strengthen the relationship between shared and individual expectations of deviant team member behavior. However, managers must find a fine balance because prior research has identified numerous benefits of team member trust (e.g. de Jong & Elfring, 2010; Chou et al., 2008).

### **3.4.3 Limitations and Directions for Future Research**

There are several limitations of this study that should be noted. First, the organizations that participated in this study were relatively small (median of 105 employees) and highly

centralized. This combination may have contributed to the insignificant results found in relation to most of the social capital hypotheses. Prior research indicates that teams in organizations that are larger and less centralized may lead teams to develop powerful social control systems within a team (e.g. Barker, 1993). This suggests that social capital may play a more powerful role in influencing team member expectations in these types of organizations since social control is based on relationships among individuals (Barker, 1993). Accordingly, future research should examine the role of social capital in relation to team member expectations in organizations that are larger and/or less centralized.

Second, social capital has been operationalized differently across studies.<sup>2</sup> For example, other studies have operationalized the cognitive dimension of social capital by measuring a shared vision (e.g. Leana & Pil, 2006; Tsai & Ghoshal, 1998). Although I attempted to test most of Nahapiet and Ghoshal's (1998) original social capital sub-dimensions, other studies might also measure a shared vision. Because I found individual and shared expectations only partially mediated their respective relationships, it may be plausible that a shared vision also partially mediates these relationships. Additionally, I did not test a few of Nahapiet and Ghoshal's (1998) sub-dimensions. For example, I did not measure norms because they may have been confounded with expectations due to their content similarity (Baron & Kerr, 2003). Thus, future research could examine other facets of social capital as mediating and moderating variables.

Third, variables not measured in this study may affect team member deviance and expectations. For example, prior research on team leaders suggests that team leaders affect team performance (Balkundi & Harrison, 2006). As this study did not investigate the role of team leaders, future research might examine the influential power of team leaders on team member deviance and expectations. Likewise, the level of social capital within a team may be affected by



the particular type of team. Cohen and Bailey (1997) identified four types of teams: work teams, parallel teams, project teams, and management teams. The level of social capital is likely to be very different in these teams and may moderate some of the relationships in this study. These are only a few examples of other variables that should be examined to provide an even richer picture of the relationship between the level of deviance within a team and the level of deviance of individual team members.

Lastly, I could not establish causality because of the cross-sectional nature of the data. Future research should examine how expectations develop over time and how the development of social capital over time affects expectations and, subsequently, team member deviance.

### **3.4.5 Conclusion**

The results of this study contribute to the teams and workplace deviance literature by demonstrating the dynamic interplay that individual team member expectations of deviant team member behavior, shared expectations of deviant team member behavior within a team, and one dimension of social capital, specifically trust, have on team member deviance.

## **3.5 FOOTNOTES**

<sup>1</sup>Following others (e.g. Eder & Eisenberger, 2008; Glomb & Liao, 2003; Robinson & O’Leary-Kelly, 1998), I conducted a single-level analysis using the average of individual-level deviance scores across a team, excluding the focal team member, as a measure of team deviance. All other variables remained unchanged. This single-level analysis mirrored the results of the multilevel analysis, except a higher level of trust within a team was not found to positively and significantly

moderate the relationship between shared and individual expectations of deviant team member behavior.

<sup>2</sup>Because social capital has been operationalized differently across studies, I conducted two alternative analyses using two different measures of social capital. The first analysis used tie strength as a measure of social capital and it was found to not significantly moderate the relationship between shared and individual expectations of deviant team member behavior. The second analysis used a composite measure of social capital based on a principal component analysis with varimax rotation and Kaiser normalization of the individual-level social capital measures. The principal component analysis indicated that shared codes and language, shared narratives, trust, and identification loaded highly on one component. Obligations loaded highly on a second component, tie strength loaded on both components, and appropriable organization did not load highly on the first or second components. Thus, these three dimensions of social capital were dropped from further analyses. Cronbach's  $\alpha$  for the composite measure of social capital was .74. Aggregation of the composite measure of social capital measure was supported by significant between-team variation ( $\chi^2(50) = 110.26, p = .000$ ), an ICC(1) of .23, and a mean  $r_{wg(j)}$  of .94. Like the first alternative analysis, the composite measure of social capital was found to not significantly moderate the relationship between shared and individual expectations of deviant team member behavior.

#### **4.0 ESSAY 3: TEAM DESIGN AND STRESS: A MULTILEVEL ANALYSIS**

Teams are a salient feature of modern organizations (van Mierlo et al., 2007). However, the design of teams can vary dramatically across organizations depending on the particular preferences and objectives of management (Appelbaum & Batt, 1994; Berggren, 1992). The particular design of a team can affect a number of psychological outcomes. In a recent review, Rasmussen and Jeppesen (2006) suggest that teamwork is associated with a number of positive psychological variables. However, they identified but one study that examined the association between teams and stress (i.e. Crichton, 2005).

The limited research that has examined the association between teams and stress is not definitive regarding the relationship between the two. Recent research has found teams to be negatively associated with stress (e.g. Conti et al., 2006; Mohr & Zoghi, 2008). Older anecdotal case-based evidence suggests that teams are stressful (e.g. Parker & Slaughter, 1988), although not necessarily stressful enough to be considered detrimental to health (Adler & Cole, 1993). A potential explanation for conflicting findings with respect to stress is that different team design choices may have differential effects on stress.

Stress has been found to be associated with a number of undesirable outcomes for employees and employers, including increased absenteeism (Hardy et al., 2003), decreased loyalty (Boswell et al., 2004), increased job search (Boswell et al., 2004; Cavanaugh et al., 2000), intentions to quit (Boswell et al., 2004), decreased job satisfaction (Cavanaugh et al., 2000), decreased job performance (Hunter & Thatcher, 2007), and deviant behaviors (Penney &

Spector, 2005; Vigoda, 2002). Thus, understanding how team design affects team member stress is an important step towards enhancing a number of important individual-level outcomes.

Our efforts to understand the relationship between team-level characteristics and team member stress is in line with recent research examining the link between team characteristics and individual job characteristics, and ultimately, psychological well-being (e.g. van Mierlo et al., 2007). We use the job demands-control model (Karasek, 1979; Karasek & Theorell, 1990) to examine whether team autonomy, in the form of team decision making, team leader appointment, and team responsibility for specific products or services, is associated with team member job demands and job control, and ultimately, team member stress. We similarly explore whether intrateam interdependence, in the form of team member task or role interdependency and team-based job rotation, is associated with team member job demands and job control, and subsequently, team member stress. We rely on a multilevel data set encompassing 1,708 team members in 292 team-based establishments to assess the impact of these team characteristics.

## **4.1 THEORY AND HYPOTHESES**

### **4.1.1 Job Demands-Control Model**

Karasek's (1979) original job demands-control model and later variants (e.g. Karasek & Theorell, 1990), is one of the most widely used stress models in occupational health psychology (de Lange et al., 2004). The model focuses on the interaction between individual job demands and individual job control as predictors of individual-level psychological job strain, or stress. Job demands include psychological stressors related to how hard an employee must work and work

overload. Job control, also known as decision latitude, refers to how much freedom a worker has on the job, and consists of two elements: skill discretion and decision authority.

#### **4.1.2 Team Characteristics, Team Member Job Demands, and Team Member Job Control**

Team design refers to the choices made by management regarding the purposes, structures, or organizational contexts of teams (Wageman, 2001). Two salient design choices to be made by management are how much autonomy teams should be granted (Cooney, 2004) and how much team members should be interdependent on one another (Cohen & Bailey, 1997). Much of the academic literature mirrors this interest in team autonomy and intrateam interdependence. With respect to the former, team decision making (e.g. Fucini and Fucini, 1995), team leader appointment (e.g. Babson, 1995), and team responsibility (e.g. Berggren, 1992) have all been extensively examined. They are all indicators of team autonomy in that they focus on “the internal self-regulation of the group and the autonomous self-control of work tasks, independent of management systems of supervision and control” (Cooney, 2004: 684). Team member interdependency (e.g. Cohen & Bailey, 1997) and team-based job rotation (e.g. Rinehart et al., 1997) have also been extensively examined. These can be considered forms of intrateam interdependence because they suggest that team members must rely upon one another in order to complete a task or outcome (Wageman, 1995). We focus on these five team characteristics, their association with team member job demands and job control, and in turn, team member stress, because each of these team characteristics can apply to virtually any type of team in the workplace.

### **4.1.3 Team Autonomy**

A number of factors can provide teams with increased autonomy, including team decision making, team leader appointment, and team responsibility for specific products or services. An assumption in the literature is that increased team autonomy increases team member autonomy (Liden & Tewksbury, 1995). Increased autonomy provided to team members through team decision making, team leader appointment, and team responsibility is likely to increase individual job demands and individual job control for team members.

Allowing a team to decide how its work is to be done, including who will lead the team, is likely to increase individual job demands due to the need for consensus within the team (Robbins & Finley, 2000). When consensus must be reached, individuals have to choose among alternatives – a demanding task when preferences differ (Miller, 1989). For example, in their research at Mazda, Fucini and Fucini (1990) found joint decision making required team members to reach a consensus on job scheduling, production goals, and quality standards. Beyond the time pressure caused by the need to make an increased number of decisions (Wellins et al., 1991), social interaction processes, such as participation, communication, negotiation, and persuasion, become more critical (Mohammed & Ringseis, 2001). The need to work through consensus building processes (e.g. selecting a team leader) are forms of job demands (Harris & Beyerlein, 2003) that employees in teams that do not engage in joint decision making can avoid.

Likewise, team responsibility for specific products or services may increase individual job demands. Godard (2004: 358) found that ‘team responsibility for a good or service was positively associated with work overload, role stress and after-work fatigue.’ The most salient reason why team responsibility increases individual job demands is that it leads to greater accountability. There are fewer opportunities to shift blame to other individuals or teams when

the team fails to fulfill its responsibility for the product or service. This results in greater pressure on individuals to succeed with the product or service. This can have a trickle-down effect to members of the team because they are more accountable to one another. Accordingly, team responsibility can lead to a situation where peer pressure creates additional mental demands for individual team members (Barker, 1993; MacDuffie, 1995; Rinehart et al., 1997).

For these reasons, we expect that providing greater autonomy to team members by allowing the team to make its own decisions may increase the job demands of team members. Thus, we hypothesize:

*Hypothesis 1a: Team decision making is positively associated with team member job demands.*

*Hypothesis 2a: Team leader appointment by team members is positively associated with team member job demands.*

*Hypothesis 3a: Team responsibility for specific products or services is positively associated with team member job demands.*

Although team decision making, team leader appointment, and team responsibility may increase the job demands of team members, they may also increase job control (Wellins et al., 1991). For instance, the prototypical “Swedish model” of work teams delegates daily responsibilities to work teams, allowing teams to decide such things as their own job rotation schedules and their own overtime hours (Adler & Cole, 1993; Appelbaum & Batt, 1994; Berggren, 1992). When team members select their own team leaders, they can opt for leaders who value team member participation in decision making. Participative decision making allows team members to have greater influence, including how much skill discretion and decision authority team leaders will grant them in their individual jobs (Glew et al., 1995). In contrast,

teams led by management appointees are often forced to follow standard operating procedures that do not allow room for experimentation to find better work methods (Hackman, 2002). This results in decreased skill discretion and decision authority for team members in their individual jobs. We therefore hypothesize:

*Hypothesis 1b: Team decision making is positively associated with team member job control.*

*Hypothesis 2b: Team leader appointment by team members is positively associated with team member job control.*

*Hypothesis 3b: Team responsibility for specific products or services is positively associated with team member job control.*

#### **4.1.4 Intrateam Interdependence**

We next focus on intrateam interdependence, including team member task and outcome interdependency and team based job-rotation. Task or outcome interdependency may be desirable when these are required to accomplish a task successfully (Wageman, 1995; Rousseau et al., 2006). Interdependency allows individual team members to contribute incrementally and share responsibility. For example, in teams where some members have mentally demanding jobs and others have physically demanding jobs, job rotation can allow team members to be relieved of the demands associated with a particular job. Indeed, Kuijer et al. (2004) found that job rotation between garbage truck drivers and collectors decreased the mental demands of drivers and the physical demands of collectors. While one could argue that one demand is being replaced by another, rotation reduces the likelihood that a team member endures the same type of demand on an ongoing basis. This is also important in the service sector where service organizations



frequently mandate which emotions can and cannot be displayed (Rupp et al., 2008). Teams that include responsibilities that are service oriented could be mentally demanding for those members who have to fulfill the most service oriented roles. However, the demands of those positions could be diffused if team members in service roles can rotate periodically into non-service activities. Additionally, job rotation allows multiple individuals the opportunity to develop expertise in the team's different tasks, allowing for more opportunities to help those facing difficulties (Robbins & Finley, 2000). Thus, we hypothesize:

*Hypothesis 4a: Team member interdependency is negatively associated with team member job demands.*

*Hypothesis 5a: Team-based job rotation is negatively associated with team member job demands.*

Interdependency in work tasks, such as job rotation, can decrease team member job control because control of an outcome is distributed across a number of team members (Harris & Beyerlein, 2003). Not all research would agree with this. For example, Rissén and colleagues found that job rotation among supermarket cashiers led to increased perceptions of job control (2002). However, we believe that in most contexts, interdependency results in team members having less skill discretion and decision authority. Team members lose skill discretion because the number of skills that could be utilized is constrained by the activities of others. Team members also lose decision authority regarding such things as the pace at which they work and the order in which they undertake tasks because these job dimensions may be controlled in part by the pace and the order in which other team members do their jobs. Team members must coordinate accordingly (Morgan & Bowers, 1995). Thus, we hypothesize:

*Hypothesis 4b: Team member interdependency is negatively associated with team member job control.*

*Hypothesis 5b: Team-based job rotation is negatively associated with team member job control.*

#### **4.1.5 Team Member Job Demands, Team Member Job Control, and Team Member Stress**

The job demands-control model has been used in a number of empirical studies examining stress (e.g. Bradley, 2007), as well as related constructs, including anxiety-contentment (e.g. Wood, 2008), burnout (e.g. Pascual et al., 2003), fatigue (e.g. van Yperen & Hagedoorn, 2003), and general psychological health (e.g. Noblet & Rodwell, 2009; Taris & Feij, 2004; van Yperen & Snijders, 2000). While disagreements exist regarding the operationalization of stress (Cohen et al., 1995), these studies provide extensive support for the link between individual job demands, individual job control, and individual stress broadly defined. In line with this literature, we hypothesize:

*Hypothesis 6a: Team member job demands are positively associated with team member stress.*

*Hypothesis 6b: Team member job control is negatively associated with team member stress.*

#### **4.1.6 Team Characteristics and Team Member Stress**

Our theory development suggests a direct relationship between the team characteristics that are the focus of our study and team member stress. Team member job demands and team member

job control may mediate these relationships. However, our theory development suggests that the relationships between the team autonomy characteristics, and team member job demands and control are all positive. We further hypothesize that the relationships between the intrateam interdependence characteristics, and team member job demands and control are all negative. We have no basis for predicting whether team member job demands or team member job control will be more salient to team members and subsequently increase or decrease stress. There is little empirical work in this area, and as a result, we do not offer any formal hypotheses regarding those direct and mediating relationships. We will explore these relationships empirically.

## **4.2 METHOD**

### **4.2.1 Data and Sample**

To explore the relationships between team characteristics, team member job demands, team member job control, and team member stress, we drew a sample from the 2004 UK Workplace Employment Relations Survey (WERS; Department of Trade and Industry, 2005). WERS was designed to understand the state of employment relations and working life in Great Britain. As part of the study, managers completed an establishment-level survey on a range of key organizational characteristics. Employees in each establishment completed a separate survey about themselves, their jobs, and their workplace. We relied on the WERS manager survey for our measures of team characteristics and the WERS employee survey for our measures of team member job demands, control, and stress. The full WERS sample consisted of matched data for 22,451 employees in 2,295 establishments. We restricted our sample to those establishments where managers indicated 100% of the largest occupational work group worked in formally

designated teams. We further restricted the employee sample to those employees who were identified as being non-supervisors and members of the largest occupational work group in these establishments. These two restrictions ensured that we had accurate information on team practices affecting the specific team members in those teams. We further restricted our sample to establishments that had at least three or more team members completing the individual survey. This ensured that we captured some within-establishment variance in team member job demands, team member job control, and team member stress. To enable us to compare models, we deleted all cases with missing data on the variables used in this study. Our final sample consisted of matched data for 1,708 team members in 292 team-based establishments. The establishments in our sample ranged in size from 5 to 3,560 employees, with a mean of 251 employees. The number of team members responding per establishment in our sample ranged from 3 to 16, with a mean of 6 team member respondents.

#### **4.2.2 Measures**

**4.2.2.1 Stress** The employee survey included Warr's (1990) measure of job anxiety-contentment. Team members were asked 'Thinking of the past few weeks, how much of the time has your job made you feel each of the following?' Six response scales measured how often a team member felt tense, calm (reverse coded), relaxed (reverse coded), worried, uneasy, and content (reverse coded). Responses were measured on a five point Likert-scale ranging from 1 (Never) to 5 (All of the time) and responses were assumed to be bipolar. This means that responses to the negative affect items (i.e. tense, worried, uneasy) should be negatively, but highly correlated, to the positive affect items (i.e. calm, relaxed, and content). The correlations

between the negative affect and positive affect items in our sample ranged from .30 for the pair worried-content to .52 for the pair tense-calm.

These results suggest that respondents did not interpret the positive and negative affect items as bipolar and that the relationship between the positive and negative items may be non-linear. Although it has been argued that random and nonrandom response error may mask bipolarity (Green et al., 1993), one can test whether the relationships between items are bipolar using Mokken scale analysis (Mokken, 1971). Mokken scale analysis (1971) is frequently used to assess unidimensionality and scale selection (van der Ark, 2007; van Schuur, 2003). For example, Segura and Gonzalez-Roma (2003) relied on Mokken scale analysis to demonstrate that respondents constructed response formats for the item pair tense-relaxed as bipolar, indicating unidimensionality and linearity. Following Segura and Gonzalez-Roma (2003) and Wood (2008), we conducted a Mokken scale analysis (Mokken, 1971) on our sample. We found that Warr's (1990) anxiety-contentment scale was best represented by two separate dimensions. One dimension consisted of the negative affect items and the second dimension consisted of the positive affect items. The negative affect scale satisfied all Mokken scale analysis criteria. Principal component analysis with varimax rotation and Kaiser normalization revealed the same pattern. This is consistent with Mäkikangas et al.'s (2007) confirmatory factor analysis of Warr's (1990) full 12-item scale, which suggested that measuring job-related affective well-being was best described by a model with four interrelated factors, with one of these factors being anxiety. Following others (e.g. Hardy et al., 2003), we used the negative component, termed anxiety in the literature, as our dependent variable and indicator of stress.

Our use of anxiety as a measure of stress mirrors extant practice in the literature (cf. Ferris et al., 1996; Hardy et al., 2003; Hunter & Thatcher, 2007; Xie & Johns, 1995). Beyond the

widespread use of anxiety as a measure of stress in the extant literature, anxiety is an appropriate measure of stress because it is one indicator of short-term stress (Xie & Johns, 1995). In a similar vein, Robinson and Clore's (2002: 199) research suggests that individuals use episodic emotion knowledge, or "knowledge about one's emotions in a particular place at a particular time," when reporting on their emotions over short periods of time. Warr's (1990) measure of job anxiety-contentment taps into this episodic emotion knowledge by asking team members how their jobs made them feel over the past few weeks. By focusing on a team member's state rather than traits, this reduces potential confounding effects of team member disposition. Cronbach's  $\alpha$  for this scale was .83 ( $M = 2.41$ ,  $SD = 0.87$ ).

**4.2.2.2 Team member job demands and team member job control** Team member job demands were measured by how much team members agreed with the following statement: 'I never seem to have enough time to get my work done.' This statement captures time pressure and workload, both of which Karasek (1969) identified as key components of job demands. Time pressure or workload have been used in prior studies as a measure of individual job demands (e.g. Karasek, 1979; Taris & Feij, 2004; van Jaarsveld et al., 2010; van Yperen & Hagedoorn, 2003; van Yperen & Snijders, 2000; Wood, 2008). Responses were measured on a five point Likert-scale ranging from 1 (Strongly disagree) to 5 (Strongly agree). The average team member indicated a moderate level of job demands ( $M = 3.15$ ,  $SD = 1.08$ ).

Following Wood (2008), we used five indicators of job control. Team members were asked to indicate how much influence they generally had over the following: 'What tasks you do in your job,' 'The pace at which you work,' 'How you do your work,' 'The order in which you carry out tasks,' and 'The time you start or finish your working day.' Responses were measured on a four point Likert-scale ranging from 1 (None) to 4 (A Lot). Cronbach's  $\alpha$  for this scale was

.78. The average team member indicated a moderate level of job control ( $M = 2.71$ ,  $SD = 0.76$ ).

We rely on an additive model of job demands and control, following evidence from the literature that suggests individual job demands and individual job control influence stress in an additive manner (see de Jonge & Kompier, 1997, and van der Doef & Maes, 1999 for reviews).

**4.2.2.3 Team characteristics** Managers indicated whether team members were able to jointly decide how the work was to be done (0 = No, 1 = Yes), were able to appoint their own team leaders (0 = No, 1 = Yes), were given team responsibility for specific products or services (0 = No, 1 = Yes), depended on each other's work to be able to do their job (0 = No, 1 = Yes), and rotated tasks or roles (0 = No, 1 = Yes). Similar to the approach of Osterman (2000) and others, the questions are centered on the core employee group in the establishment. Half of the establishments indicated that team members jointly decided how the work was to be done (50%), a small number of establishments indicated that team members could appoint their own team leaders (5%), the majority of establishments indicated that teams had responsibility for specific products or services and that team members depended on each other's work to be able to do their job (85% and 76%, respectively), and 69% indicated that tasks or roles rotated among members of the team.

**4.2.2.4 Individual-level control variables (level 1)** Similar to Wood's (2008) analysis of the WERS data in relation to job anxiety-contentment and job satisfaction, we controlled for several key demographic variables and job-related variables. We controlled for three demographic variables: gender, age, and education. We controlled for gender (reference group is male) because research, albeit mixed in regards to the direction of association, suggests that males and females may perceive different levels of stress (cf. Ferris et al., 1996; Lait & Wallace, 2002;

Narayanan et al., 1999; Tai & Liu, 2007; Wood, 2008). Similarly, we controlled for age (0 = Less than 20 to 5 = 60 and above) because prior research, albeit mixed with regards to the direction of association, suggests that there may be an association between age and stress (cf. Ferris et al., 1996; Spell & Arnold, 2007; Warr, 1992; Wood, 2008). Research has also demonstrated that higher education levels are associated with higher stress (e.g. Warr, 1992; Wood, 2008). We controlled for education via two dummy variables. The first captures whether employees obtained their first degree (e.g. BSc, BA, BEd; 0 = No, 1 = Yes) and the second whether they obtained a Masters degree or higher (0 = No, 1 = Yes). The reference group is low education (below first degree).

We also controlled for several job-related characteristics, including managerial support, part-time or full-time status, tenure at the establishment, and union membership. The expanded job demands-control-support model (Karasek & Theorell, 1990), and associated empirical work, suggests that social support can affect perceptions of stress (Karasek & Theorell, 1990; Daniels & Guppy, 1994; Lait & Wallace, 2002). Following Wood (2008), we used six indicators of managerial support (WERS did not include indicators of team member support). Team members were asked to indicate the extent to which they agreed with six statements concerning managers at their workplace. Examples include ‘Can be relied upon to keep to their promises,’ ‘Are sincere in attempting to understand employees’ views,’ and ‘Encourage people to develop their skills.’ Responses were measured on a five point Likert-scale ranging from 1 (Strongly disagree) to 5 (Strongly agree). Cronbach’s  $\alpha$  for this scale was .93. The average team member indicated a moderate level of managerial support ( $M = 3.31$ ,  $SD = 0.93$ ).

We controlled for part-time status (0 = No, 1 = Yes) as there is some evidence that working more hours is associated with higher stress levels (e.g. Danford et al., 2008). Consistent



with the UK context where the survey data was collected, we measured part-time status by whether team members worked less than 30 hours per week (Department of Trade and Industry, 2005). We controlled for tenure at the establishment (0 = Less than 1 year to 4 = 10 years or more) because longer organizational tenure has been found to be associated with lower levels of stress (Ferris et al., 1996). Lastly, we controlled for whether team members were union members (0 = No, 1 = Yes) as certain aspects of being a union member have been associated with role stressors and stress (e.g. Martin & Berthiaume, 1993; Nandram & Klandermans, 1993).

**4.2.2.5 Establishment-level control variables (level 2)** We controlled for establishment size (natural log of employees) because larger organizations have been associated with higher levels of employee stress (e.g. Conti et al., 2006; Lin et al., 2009).

**4.2.2.6 Industry-level control variables (level 3)** We controlled for industry in all of our analyses by creating twelve industry variables based on the 2003 UK Standard Industrial Classification of Economic Activities. The industries included ‘manufacturing’ (11%), ‘electricity, gas, and water supply’ (2%), ‘construction’ (1%), ‘wholesale and retail trade; repair of motor vehicles, motorcycles, and personal and household goods’ (10%), ‘hotels and restaurants’ (3%), ‘transport, storage, and communication’ (5%), ‘financial intermediation’ (7%), ‘real estate, renting, and business activities’ (7%), ‘public administration and defense; compulsory social security’ (14%), ‘education’ (16%), ‘health and social work’ (19%), and ‘other community, social, and personal service activities’ (5%). These twelve industry variables were treated as grouping variables at level 3; in the same way establishments are treated as grouping variables at level 2 (see below). The distribution of the industries in our reduced sample did not differ markedly from the distribution of industries in the full sample.

### 4.2.3 Data Analysis

Due to the nested nature of our data (i.e. team members, nested within team-based establishments, nested within industries), we used hierarchical linear modeling (Raudenbush & Bryk, 2002). Unlike traditional regression analysis, multilevel techniques permit us to decompose the variance in our outcome variables across the individual- (level 1), establishment- (level 2), and industry-levels (level 3). A ‘null’ model suggested 88% of the variance in stress occurred between team members within team-based establishments (i.e. at level 1), 11% occurred between team-based establishments within industries (i.e. at level 2), and 1% occurred between industries (i.e. level 3). All variables were grand-mean centered, the level-2 intercept equation’s random error term was always set as random, and all level-2 slope random error terms were set as fixed.

Our theory development suggests that the relationships between team characteristics (our level 2 independent variables) and team member stress (our level 1 dependent variable) are mediated by team member job demands and team member job control (level 1 independent variables). This is a cross-level mediation – lower-level mediator model (Mathieu & Taylor, 2007). Mathieu and Taylor (2007) proposed a set of guidelines to test for mediation in this type of model, which mirrors those set forth by Baron and Kenny (1986). However, recent research suggests that Baron and Kenny’s (1986) logic for testing whether a third variable mediates the relationship between an independent and dependent variable is flawed (Zhao et al., 2010). Specifically, Baron and Kenny (1986) argued that one requirement to demonstrate mediation is that there must be a significant direct effect between an independent and dependent variable without a mediating variable included in a model. The problem with this logic is that the “total effect” of the independent variable on the dependent variable is mathematically equivalent to the

sum of the “direct effect” and the “indirect effect” and the “direct effect” test may fail if the “direct effect” and the “indirect effect” have opposite signs. In this instance, the “total effect” can be close to zero (Zhao et al. 2010). For this reason, Zhao et al. (2010) argued that (1) the strength of mediation should be measured by the size of the “indirect effect” and not by the lack of a “direct effect” and (2) that the only requirement to demonstrate mediation is a significant “indirect effect” by the Sobel test, or a more powerful bootstrap test (Preacher & Hayes, 2004, 2008).

Zhao et al.’s (2010) guidelines provide a correction to Baron and Kenny’s (1986) guidelines. We test for mediation using both Zhao et al.’s (2010) and Mathieu and Taylor’s (2007) guidelines, as the latter have been used more extensively in the literature.

### **4.3 RESULTS**

Table 4.1 presents the descriptive statistics for all of the variables used in this study. Table 4.2 presents the correlations between all of the variables used in this study. Individual-level variables were correlated at the individual level. Likewise, establishment-level variables were correlated at the establishment level. The correlations between individual- and establishment-level variables reflect the assignment of establishment values at the individual-level.

The correlations indicate that team member job demands are positively and significantly associated with team member stress, while team member job control is negatively and significantly associated with team member stress. Furthermore, team member job demands are positively correlated with the team autonomy characteristics (i.e. team decision making, team leader appointment, and team responsibility) and negatively correlated with the intrateam

**Table 4.1 Descriptive Statistics**

Variable	Mean	Standard deviation
1. Stress	2.41	0.87
2. Team decision making	0.50	0.50
3. Team leader appointment	0.05	0.22
4. Team responsibility	0.85	0.36
5. Team member interdependency	0.76	0.43
6. Team-based job rotation	0.69	0.46
7. Job demands	3.15	1.08
8. Job control	2.71	0.76
9. Managerial support	3.31	0.93
10. Gender (female)	0.62	0.49
11. Age	2.55	1.26
12. First degree	0.16	0.37
13. Higher degree	0.06	0.25
14. Part time	0.28	0.45
15. Tenure	2.18	1.37
16. Union member	0.47	0.50
17. Size	250.94	423.52

interdependence characteristics (i.e. team member interdependency and job rotation). Likewise, team member job control is positively correlated with the team autonomy characteristics and negatively correlated with the intrateam interdependence characteristics. This provides some evidence that team decision making, team leader appointment, and team responsibility are tapping the same latent construct of team autonomy, while team member interdependency and team-based job rotation are tapping the same latent construct of intrateam interdependence.

The results of our hierarchical linear modeling are presented in Table 4.3. Model 1 includes only our control variables. Model 2 tests our hypotheses regarding our team characteristics and team member job demands. Model 3 tests our hypotheses regarding our team characteristics and team member job control. Model 4 tests our hypotheses regarding team member job demands, team member job control, and team member stress. Model 5 tests if there

**Table 4.2 Correlations**

Variable	1	2	3	4	5	6	7	8	9	10
1. Stress										
2. Team decision making	.05*									
3. Team leader appointment	.04	.11								
4. Team responsibility	.04	.20**	.10							
5. Team member interdependency	.02	.14*	.13*	.06						
6. Team-based job rotation	-.07**	.09	.06	.14*	.23**					
7. Job demands	.39**	.10**	.05	.11**	-.04	-.09**				
8. Job control	-.11**	.10**	.03	.07**	-.01	-.06*	-.03			
9. Managerial support	-.29**	.11**	-.05*	.02	-.01	-.02	-.13**	.23**		
10. Gender (female)	-.03	.11**	-.13**	.03	-.06*	.02	.01	.04	.19**	
11. Age	-.03	.01	.03	.00	-.01	-.05*	.13**	.01	-.09**	-.04
12. First degree	.12**	.10**	.01	.06*	-.05*	-.08**	.06**	.02	.04	-.01
13. Higher degree	.10**	.09**	.03	.06*	-.06*	-.11**	.11**	.06*	.06*	-.03
14. Part time	-.11**	.05*	-.04	-.01	.02	.06*	-.07**	-.05	.10**	.32**
15. Tenure	.06*	-.06**	.03	.03	.01	.02	.14**	.02	-.23**	-.06*
16. Union member	.14**	-.03	.05	.12**	-.12**	-.13**	.17**	.02	-.16**	-.15**
17. Size (natural log)	.01	-.14*	.04	-.06	-.09	-.12*	-.05	-.06**	-.16**	-.17**

Variable	11	12	13	14	15	16
12. First degree	-.07**					
13. Higher degree	-.02	-.12**				
14. Part time	.05*	-.03	-.05*			
15. Tenure	.41**	-.11**	-.09**	-.01		
16. Union member	.15**	.08**	.10**	-.13**	.30**	
17. Size (natural log)	-.01	-.04	.08**	-.07**	.05*	.11**

\*  $p \leq .05$ . \*\*  $p \leq .01$ .

**Table 4.3 HLM Results of the Relationships between Team Characteristics, Team Member Job Demands, Team Member Job Control, and Team Member Stress**

	Stress		Demands		Control	
Variables	Model 1		Model 2		Model 3	
<i>Level 1: Individual Level</i>						
Control Variables						
Gender (female)	0.09	(0.05)	0.11	(0.06)	0.03	(0.04)
Age	-0.04*	(0.02)	0.06**	(0.02)	-0.01	(0.02)
First degree	0.28**	(0.06)	0.11	(0.07)	0.02	(0.05)
Higher degree	0.42**	(0.09)	0.36**	(0.11)	0.12	(0.08)
Part time	-0.14**	(0.05)	-0.19**	(0.06)	-0.06	(0.04)
Tenure	0.02	(0.02)	0.08**	(0.02)	0.06**	(0.02)
Union member	0.09**	(0.05)	0.10	(0.06)	0.03	(0.04)
Managerial support	-0.30**	(0.02)	-0.16**	(0.03)	0.19**	(0.02)
Mediating Variables						
Job demands					-0.04*	(0.02)
Job control			-0.07	(0.03)		
<i>Level 2: Est. Level</i>						
Control Variable						
Size (natural log)	-0.03	(0.02)	-0.07**	(0.03)	-0.02	(0.02)
Independent Variables						
Team decision making			0.14*	(0.07)	0.12*	(0.05)
Team leader appointment			0.14	(0.15)	0.12	(0.11)
Team responsibility			0.24*	(0.10)	0.10	(0.07)
Team member interdependency			-0.03	(0.08)	0.00	(0.06)
Team-based job rotation			-0.21**	(0.08)	-0.15**	(0.05)
Deviance	4,064.83** <sup>a</sup>		4,860.80		3,643.21	

\*  $p \leq .05$ .

\*\*  $p \leq .01$ .

Note. All variables are grand-mean centered. Standard errors are reported in parentheses.

<sup>a</sup>Compared to “null” model.

<sup>b</sup>Compared to model 1.

<sup>c</sup>Compared to model 5.

**Table 4.3 (continued)**

	Stress		Stress		Stress	
Variables	Model 4		Model 5		Model 6	
<i>Level 1: Individual Level</i>						
Control Variables						
Gender (female)	0.06	(0.04)	0.09*	(0.05)	0.07	(0.04)
Age	-0.06**	(0.02)	-0.05**	(0.02)	-0.06**	(0.02)
First degree	0.25**	(0.05)	0.28**	(0.06)	0.24**	(0.05)
Higher degree	0.32**	(0.08)	0.41**	(0.09)	0.30**	(0.08)
Part time	-0.11*	(0.04)	-0.13**	(0.05)	-0.11*	(0.04)
Tenure	0.01	(0.02)	0.02	(0.02)	0.01	(0.02)
Union member	0.06	(0.04)	0.09*	(0.05)	0.06	(0.04)
Managerial support	-0.24**	(0.02)	-0.30**	(0.02)	-0.24**	(0.02)
Mediating Variables						
Job demands	0.26**	(0.02)			0.25**	(0.02)
Job control	-0.07**	(0.03)			-0.07**	(0.03)
<i>Level 2: Est. Level</i>						
Control Variable						
Size (natural log)	-0.02	(0.02)	-0.03	(0.02)	-0.02	(0.02)
Independent Variables						
Team decision making			0.10*	(0.05)	0.06	(0.05)
Team leader appointment			0.04	(0.12)	0.03	(0.10)
Team responsibility			0.04	(0.07)	-0.01	(0.06)
Team member interdependency			0.07	(0.06)	0.09	(0.05)
Team-based job rotation			-0.13*	(0.06)	-0.08	(0.05)
Deviance	3,866.10** <sup>b</sup>		4,054.10 <sup>b</sup>		3,858.45** <sup>c</sup>	

\*  $p \leq .05$ .\*\*  $p \leq .01$ .

Note. All variables are grand-mean centered. Standard errors are reported in parentheses.

<sup>a</sup>Compared to “null” model.<sup>b</sup>Compared to model 1.<sup>c</sup>Compared to model 5.

are any direct relationships between our team characteristics and team member stress when team member job demands and team member job control are excluded from the model. Lastly, model 6 tests whether team member job demands and team member job control mediate the relationships between our team characteristics and team member stress.

#### **4.3.1 Control Variables**

In Model 1, we examine the relationships between our control variables and team member stress. We find older workers and part-time workers report significantly less stress. In support of the expanded job demands-control-support model (Karasek & Theorell, 1990), we find managerial support is associated with less stress. Consistent with Warr (1992) and Wood (2008), we find that workers with higher levels of education are significantly more stressed. We also find evidence that union membership is a source of stress. However, we find no significant relationships between gender or tenure, and team member stress. This model represented a significant improvement over the “null” model ( $\chi^2(9) = 234.72, p = .000$ ) and accounted for 8% of the individual-level variance in stress.

#### **4.3.2 Team Characteristics and Team Member Job Demands**

In model 2, we test our hypotheses regarding our team characteristics and team member job demands. In regards to the team autonomy characteristics, we find that team decision making and team responsibility for specific products and services are positively and significantly associated with team member job demands. We find no significant relationship between team leader appointment and job demands. Thus, hypotheses 1a and 3a are supported, while hypothesis 2a is not supported. In regards to intrateam interdependence, we find that both team member



interdependency and job rotation are negatively associated with job demands. However, only the result for team-based job rotation is significant. Thus, hypothesis 4a is not supported while hypothesis 5a is supported. In summary, a higher degree of team autonomy, in the form of team decision making and team responsibility, is associated with increased job demands, while a higher degree of intrateam interdependence, in the form of team-based job rotation, is associated with decreased job demands. These results suggest that the optimal design of a team, with respect to team member job demands, is a team with a low degree of autonomy and high degree of intrateam interdependence.

#### **4.3.3 Team Characteristics and Team Member Job Control**

In model 3, we test our hypotheses regarding our team characteristics and team member job control. With regards to team autonomy, we find that team decision making is positively and significantly associated with team member job control. The relationships between team leader appointment by team members and job control, as well as team responsibility and job control, are not significant. Thus, hypothesis 1b is supported, while hypotheses 2b and 3b are not supported. With regards to intrateam interdependence, we find no significant relationship between team member interdependency and job control. However, team-based job rotation is negatively and significantly associated with team member job control. Thus, hypothesis 4b is not supported while hypothesis 5b is supported. In summary, a higher degree of team autonomy, in the form of team decision making, is associated with increased job control, while a higher degree of intrateam interdependence, in the form of team-based job rotation, is associated with decreased job control. In contrast to our findings for team member job demands, these results suggests that

the optimal design of a team, with respect to team member job control, is a team with a high degree of autonomy and a low degree of intrateam interdependence.

#### **4.3.4 Team Member Job Demands, Team Member Job Control, and Team Member Stress**

In model 4, we test Karasek's (1990) job demands-control model. In line with hypotheses 6a and 6b, we find that team member job demands are positively associated with team member stress while team member job control is negatively associated with team member stress. This model represented a significant improvement over model 1 ( $\chi^2(2) = 198.73$ ,  $p = .000$ ) and accounted for 20% of the individual-level variance in stress.

#### **4.3.5 Team Characteristics and Team Member Stress**

In model 5, we explore the relationships between our team characteristics and team member stress without team member job demands and team member job control included in the model. Team leader appointment, team responsibility, and team member interdependency are not significantly associated with team member stress. However, team decision making is positively and significantly associated with team member stress, and team-based job rotation is negatively and significantly associated with team member stress. Thus, a higher degree of team autonomy, in the form of team decision making, is associated with increased stress, whereas a higher degree of intrateam interdependence, in the form of team-based job rotation, is associated with decreased stress. Based on our prior results, these results suggest that perceptions of increases or decreases in job demands are more salient to team members than their perceptions of increases or decreases in job control. We formally test for this in the next section.

#### **4.3.6 Mediating Roles of Team Member Job Demands and Team Member Job Control**

As previously mentioned, we used two methods to test for multilevel mediation. First, we followed the guidelines set forth by Mathieu and Taylor (2007). In model 1, there was still significant between-establishment variance in stress after controlling for level-1 and level-2 control variables ( $\chi^2(279) = 472.64, p = .000$ ). The first condition to informally show full or partial mediation according to Mathieu and Taylor (2007) is that the independent variables of interest must be significantly associated with the outcome variable when the mediating variables are absent from the model. As demonstrated in model 5, team decision making and team-based job rotation satisfied this condition. The second condition that must be satisfied is that the independent variables of interest must be significantly associated with the mediating variables. As we previously discussed, team decision making and team-based job rotation met this condition in models 2 and 3. The third condition that must be satisfied is that the mediating variables must be significantly associated with the outcome variable without the independent variables of interest in the model. This condition was satisfied in model 4. Like with mediation using ordinary least squares regression, the last condition to informally show full or partial mediation in a hierarchical model is that the mediating variables must be significantly associated with the outcome variable and the independent variables must fully or partially lose significance when mediating variables are included in the model. Model 6 provides the results when all our team characteristics and team member job demands and team member job control are included in the model. Both team member job demands and team member job control are significant. The significance level for team decision making and team-based job rotation became non-significant when team member job demands and team member job control were included in the model, indicating full mediation.

We performed the Sobel test to formally test for mediation. The Sobel test for team member job demands indicated that team member job demands fully mediated the relationship between team decision making and team member stress (Sobel = 1.98,  $p = .048$ ), while the Sobel test for team member job control indicated that team member job control did not mediate the relationship between team decision making and team member stress (Sobel = -1.67,  $p = .094$ ). The Sobel test for team member job demands indicated that team member job demands fully mediated the relationship between team-based job rotation and team member stress (Sobel = -2.57,  $p = .010$ ), while the Sobel test for team member job control indicated that team member job control did not mediate the relationship between team-based job rotation and team member stress (Sobel = 1.84,  $p = .066$ ).

Because team responsibility was significantly associated with team member job demands, we tested whether team member job demands mediated the relationship between team responsibility and team member stress based on Zhao et al.'s (2010) recommendation noted earlier. Consistent with our theoretical framework, the Sobel test indicated that team member job demands mediated the relationship between team responsibility and team member stress (Sobel = 2.36,  $p = .018$ ). These results also suggest it is unlikely that there is an omitted mediating variable between team decision making, team responsibility, team-based job rotation, and stress, respectively, because the non-significant paths in model 6 indicate that the total effect of each of these relationships was explained by the sum of team member job demands, or the “indirect effect,” and the respective team characteristic, or the “direct effect” (Zhao et al., 2010). Our mediation findings reinforce our suggestion that perceptions of increases or decreases in job demands are more salient to team members than their perceptions of changes in job control.

Model 6 represented a significant improvement over model 5 ( $\chi^2(2) = 195.66, p = .000$ ) and accounted for 20% of the individual-level variance in stress and 63% of the establishment-level variance in stress. We also tested an interaction between team member job demands and team member job control in model 6. Consistent with other studies, the interaction was not significant. Therefore, we did not explore the interaction as a mediating variable.

## **4.4 DISCUSSION**

This study demonstrated that team member job demands indirectly mediated the relationships between team autonomy, intrateam interdependence, and team member stress. We found that team member job demands indirectly mediated the positive relationship between team autonomy, in the form of team decision making and team responsibility, and team member stress. We also found that team member job demands indirectly mediated the negative relationship between intrateam interdependence, in the form of team-based job rotation, and team member stress. We believe these findings begin to fill important gaps in the team literature.

### **4.4.1 Implications**

First and foremost, our results help clarify contradictory research findings regarding the relationship between teams and stress (cf. Adler & Cole, 1993; Conti et al., 2006; Mohr & Zoghi, 2008; Parker & Slaughter, 1988). Rather than looking at the team as a whole, we examined underlying team characteristics to provide a richer picture of the relationship between teamwork and stress. Taking a more fine grained approach to studying teamwork helps to not only inform

the debate about teams and stress (cf. Adler & Cole, 1993; Parker & Slaughter, 1988), but also broader research streams examining the benefits and costs of teamwork.

The team literature has indicated that teamwork has a variety of positive and negative consequences for team members. For example, there is debate as to whether teamwork increases or decreases team member job demands (Edwards et al., 2002). Using the WERS98 data, Harley (2001) found that teamwork was not significantly associated with job demands. However, other research suggests that teamwork does indeed increase team member job demands (e.g. Adler & Cole, 1993; Bacon & Blyton, 2003; Geary & Dobbins, 2001; Parker & Slaughter, 1988), although Adler and Cole (1993) argued that it is not high enough to be detrimental to employee health. In line with this research, our results suggest that teamwork increases team member job demands, but this increase only occurs when teams make their own decisions about how the work is to be done and when teams are responsible for specific products or services. On the other hand, our results suggest that teamwork can also decrease team member job demands if job rotation is present within the team. Like Geary and Dobbins' (2001) finding that teamwork has benefits and costs, we find that teamwork has benefits and costs in relation to team member job demands, and its subsequent impact on team member stress.

There is a similar debate as to whether teamwork increases or decreases team member job control (Edwards et al., 2002). Research suggests that teamwork does indeed increase team member job control. For example, Bacon and Blyton (2003) found that teamwork led to increased perceptions of control in the form of influence over quality and increased satisfaction levels related to control over work. Marchington (2007) argued that teamwork also increases team member job control through greater voice. In contrast, others are more pessimistic about teamwork's influence on team member job control (e.g. Barker, 1993; Benders, 2005; Parker &

Slaughter, 1988; Vallas, 2003). For example, Parker and Slaughter (1988) argued that work practices at NUMMI (a joint venture between General Motors and Toyota), like teamwork, reduced the job control of employees. Again, our findings suggest that whether or not teamwork increases or decreases team member job control depends on choices made by management regarding the specific design of a team. Our results suggest that team decision making increases team member job control, whereas team-based job rotation decreases team member job control. In summary, our findings contribute to the debate surrounding the benefits and costs of teams by indicating that the benefits and costs of teams are partially a function of team design.

A further contribution of this research is to expand the job demands-control model both conceptually and methodologically. First, the job demands-control model (Karasek, 1979; Karasek & Theorell, 1990) has traditionally been used as an additive model or interactive model (e.g. Bradley, 2007; Wood, 2008; Pascual et al., 2003; van Yperen & Hagedoorn, 2003; van Yperen & Snijders, 2000). Like a few others (e.g. van Mierlo et al., 2007; Rahkonen et al., 2006), we found that individual job demands can have an important mediating effect in addition to its traditional role as a main effect or moderator. Second, there are few studies that examine the job demands-control model in a multilevel context (for an exception, see Totterdell et al., 2006). Our study demonstrates that the job demands-control model (Karasek, 1979) can be fruitfully explored in a multilevel context, with associated implications for cross-level theory building.

Since teams are a salient feature of modern organizations (van Mierlo et al., 2007), the results of this study have a number of managerial implications. First and foremost, if managers are designing teams with team member stress in mind, this study suggests that managers may want to seriously consider making team members interdependent on one another by rotating jobs

within the team. Although we found that team-based job rotation is negatively associated with team member job control, the decrease in team member job demands seems to be more salient to team members than the corresponding decrease in job control. The net result is lower stress. However, our results suggest that managers may want to think carefully about the role of team autonomy as our results suggests that team decision making and team responsibility for goods and services are associated with increased stress. The perceived increase in the job demands of team members that may be caused by team decision making and team responsibility seem to outweigh the perceived increase in job control resulting from team decision making.

#### **4.4.2 Limitations and Directions for Future Research**

There are several limitations of this study. By collecting team-level data at the establishment-level, the team characteristic measures sacrificed richness for generalizability. Although the team characteristics measures can arguably apply to any type of team, managers did not indicate the specific types of teams that were utilized in their respective workplaces. Thus, we could not determine whether the teams in our study were work teams, project teams, parallel teams, management teams, or any of a number of other types of teams. This may be one reason why we did not find significant results for some of our hypotheses. Teams working within and between organizations are very different from one another and the definition of what a team is can vary accordingly (Appelbaum & Batt, 1994). Greater precision in how managers are asked about teams would enable researchers to capture potentially important dimensions of team variation within and across establishments and ensure consistency in how managers understand the questions. Furthermore, because of sample size limitations, we were not able to examine how industry and other contextual variables may influence the relationships in our study, nor were we



able to assess whether our findings are driven in part by occupational differences in how team work is structured.

A second limitation of our study is that we were limited in the number of characteristics we could examine. There are other variables that could play important roles. For example, a team's climate has been shown to predict the mental health of team members (e.g. Carter & West, 1998). Future research could examine whether team climate moderates the relationships between team characteristics and stress. Consistent with our findings, prior research has found that social support from supervisors can influence stress (e.g. O'Driscoll & Beehr, 1994). However, we were unable to capture another form of support, namely, that provided by team leaders and team members. Future research might examine whether these other forms of social support moderate the relationships between team characteristics and stress.

A third limitation pertains to some of the measures utilized in this study, as alluded to in our team leader support discussion. First, only Warr's (1990) job anxiety-contentment scale was included in WERS. Prior research has operationalized stress in a variety of ways (Cohen et al., 1995; Kahn & Byosiore, 1992) that may capture different indicators of stress, such as burnout (e.g. Pascual et al., 2003; Pisanti et al., 2003), fatigue (e.g. van Yperen & Hagedoorn, 2003), and general psychological health (e.g. Noblet & Rodwell, 2009; Taris & Feij, 2004; van Yperen & Snijders, 2000). Future research should examine a broader set of indicators of stress in teams, including both physical and psychological indicators. Likewise, although time pressure and workload demands were captured in this study by one statement, they are not the only types of demands that team members experience in their jobs. Future research might attempt to capture a greater variety of job demands experienced by team members using a variety of different measures (e.g. job content measures).

Finally, our use of cross-sectional data limited our ability to establish causality. Longitudinal data would allow researchers to identify whether changes in team characteristics lead to altered levels of team member job demands, team member job control, and subsequently, team member stress. Another limitation related to our sample rests in the fact that it consists solely of employees and establishments in Great Britain. Glazer and Beehr (2005) found evidence that some work factors predicting employee stress had similar effects on the stress levels of nurses in America, the United Kingdom, Hungary, and Italy. However, other studies have found national differences. For example, Liu, Spector, and Shi (2007) found that American employees were more likely to report a lack of job control and direct interpersonal conflict as sources of stress, whereas Chinese employees reported that indirect conflict was an important driver of stress. Exploring the relationships between team characteristics, team member job demands, team member job control, and team member stress in different cultures may present another avenue for fruitful inquiry.

#### **4.4.3 Conclusion**

Our study shows, via multilevel modeling, that team characteristics are significantly associated with team member perceptions of job demands, job control, and stress. Specifically, our results suggest that the optimal design of a team, with respect to team member stress, is a team with a low degree of autonomy and a high degree of intrateam interdependence. By examining the specific design of a team, our study not only helps clarify the debate about the relationship between teams and stress, but more broadly contributes to the debate about the benefits and costs of teams.

## 5.0 CONCLUSION

My dissertation consists of three essays on the “dark side” of teams. My first essay presents a theoretical model of social capital’s influence on team member conformity and deviance via the role and saliency of team mental models, my second essay attempts to explain the positive relationship between the level of deviance within a team and the level of deviance of individual team members by examining the roles of expectations and social capital, and my third essay examines how the design of a team is associated with team member job demands, team member job control, and team member stress. Each of these essays helps fill important gaps in the literature and provides a strong foundation for a research agenda exploring the “dark side” of teams.

In essay 1, I present a model of social capital’s influence on team member conformity and deviance. First, I propose that social capital within a team facilitates the creation of team mental models. Second, I propose that the saliency of team mental models, due to the strength of an organization’s culture, the level of bureaucracy within an organization, and the level of justice from an organization, influences team members to conform to or deviate from team norms and larger normative standards (e.g. organizational norms). Lastly, I propose that conformity (deviance) increases, maintains, or decreases social capital across organizational levels.

Although this essay begins to help fill an important gap in the workplace deviance literature by theorizing how social capital influences team members to conform to or deviate from team norms, the empirical validity of the model has yet to be determined. Thus, future

research should first focus on the propositions set forth and then attempt to extend the model. First, researchers could investigate if all the sub-dimensions of social capital identified by Nahapiet and Ghoshal (1998) are necessary, as I have argued, or if some sub-dimensions are more important than others in the creation of team mental models. Second, future research might investigate whether organizational culture, organizational bureaucracy, and organizational justice do indeed affect the saliency of team mental models to a focal team member. Third, future research could investigate whether the saliency of team mental models leads a focal team member to exhibit a specific form of conformity or deviance, as I proposed, or if a focal team member exhibits other forms of conformity and deviance. Lastly, future research might investigate whether different forms of conformity and deviance influence social capital differently across organizational levels.

Beyond helping fill an important gap in the team literature by focusing on how the capital embedded within social relationships lead to different forms of conformity and deviance, my model in essay 1 also leads to a number of other important questions that would lead researchers to better understand the “dark side” of teams. First, there may be important moderators of the social capital-shared mental model relationship. One fruitful avenue may be to investigate the specific type of team. The various types of teams in the workplace, such as work teams, project teams, parallel teams, and management teams (Cohen & Bailey, 1997), as well as non-traditional teams, such as geographically distributed teams (Hinds & Bailey, 2003), would likely affect the social capital-shared mental model relationship due to the characteristics of each particular type of team. For example, geographically distributed teams may not have as much opportunity as traditional teams to develop social capital, and therefore, may weaken social capital’s influence in the creation of team mental models.

This likely holds true for project teams and parallel teams as well. Members of project teams may be less motivated to develop social capital because project teams are time limited (Cohen & Bailey, 1997). Similarly, members of parallel teams come from different parts of an organization (Cohen & Bailey, 1997) and, subsequently, may have a harder time developing social capital due to the conflict that may result from their differing assumptions, viewpoints, and interpretations. This suggests that team mental models will be less salient to individuals in these types of teams than other shared mental models that exist within an organization, leading team members to exhibit less destructive conformity and more constructive conformity or constructive deviance.

The saliency of team mental models within an organization may also be affected by shared mental models existing outside of an organization. Indeed, many employees, such as professionals, may have competing loyalties to their organization and profession (Wallace, 1995) as more professionals work in organizations rather than professional practices (Adler, Kwon, & Heckscher, 2008). Which shared mental model will be more influential in governing a focal team member's behavior is an important avenue for future research. Lastly, there may be important moderators of the shared mental model-conformity/deviance relationship. For example, Vardi and Wiener (1996) argued Kohlberg's (1969) preconventional, conventional, and principled levels of moral development affect deviance. It seems plausible that those at the conventional level would be more likely to follow the propositions set forth in essay 1 because they are most susceptible to conformity according to Kohlberg (1969). This is only one individual difference, among many others (e.g. organizational commitment, organizational identification), that would likely affect the degree to which a team member engages in conforming and deviant behaviors.

Thus, the model I presented in essay 1 provides a promising research agenda for researchers who want to explore the “bright side” *as well as the* “dark side” of teams.

Essay 2 begins to explore the theoretical model I presented in essay 1. Using 209 team members representing 51 teams in 13 organizations, I help explain the positive associations found in prior research between the level of deviance within a group and the level of deviance of individual group members (e.g. Eder & Eisenberger, 2008; Glomb & Liao, 2003; Robinson & O’Leary-Kelly, 1998). I find that individual expectations of deviant team member behavior partially mediate this relationship, while shared expectations of deviant team member behavior within a team partially mediate the relationship between the level of deviance within a team and individual expectations of deviant team member behavior. I also find that one dimension of social capital within a team, specifically trust, positively moderates the relationship between shared expectations and individual expectations.

This essay demonstrates the dynamic interplay of expectations and social capital on team member deviance by suggesting that the deviant behavior of team members lead individual team members to form shared expectations of deviant team member behavior within the team, these shared expectations lead individuals to form their own expectations of deviant team member behavior, and their own expectations lead them to behave in a deviant fashion. Accordingly, this study helps fill important gaps in the literature. First, this study helps answer Robinson and O’Leary-Kelly’s (1998) call to identify how expectations of deviant team member behavior are developed, communicated, and enforced. Second, it helps expand the relative lack of research investigating individual-level outcomes of team mental models (Chou, Wang, Wang, Huang, & Cheng, 2008), such as shared expectations of behavior. Lastly, it helps answer the call of

Mohammed, Ferzandi, and Hamilton (2010) to investigate the “dark side” of team mental models.

Beyond helping fill important gaps in the literature, this essay provides a basis by which to further explore the positive relationship between the level of deviance within a team and the level of deviance of individual team members. First and foremost, the results of essay 2 indicate that there are still important mediating variables that need to be explored in future research to fully explain this relationship. Robinson and O’Leary-Kelly (1998) controlled for such things as close supervision and likelihood of punishment and Glomb and Liao (2003) controlled for such things as organizational injustice. All of these variables could potentially help explain this relationship and should be investigated in future research. Similarly, variables not measured in this essay may affect team member deviance and expectations. For example, future research might examine the influential power of team leaders on team member deviance and expectations because prior research on team leaders suggests that team leaders affect team performance (e.g. Balkundi & Harrison, 2006).

Lastly, the relatively small and highly centralized organizations that participated in this study may have prevented me from finding significant moderating affects of social capital on shared expectations. Prior research indicates that teams in organizations that are larger and less centralized may lead teams to develop powerful social control systems within a team (e.g. Barker, 1993). Future research could examine teams in larger and less centralized organizations because social capital within a team may be more influential in these types of environments, leading individuals to exhibit more destructive conformity and less constructive conformity or constructive deviance. It is extremely plausible that the small and highly centralized nature of the organizations in my sample lead shared mental models at the organizational level to be more

influential on team member behavior, thereby leading team members to exhibit less destructive conformity and more constructive conformity or constructive deviance.

Essay 3 examines how the design of a team is associated with team member stress. Using a sample of 1,708 team members in 292 team-based establishments, I examine the relationship between team member stress, and team autonomy in the form of team decision making, team leader appointment, and team responsibility. I also examine the relationship between stress, and intrateam interdependence in the form of team member interdependency and team-based job rotation. I further examine whether the relationships between team design and stress are mediated by team member job demands and job control. I find that an increase in job demands indirectly mediates the positive relationships between team decision making and team responsibility, and stress. I also find that a decrease in job demands indirectly mediates the negative relationship between team-based job rotation and stress. These results suggest that the optimal design of a team, with respect to stress, is a team that has a low degree of autonomy and a high degree of intrateam interdependence.

These findings begin to fill an important gap in the literature. Rather than looking at the association between teams in general and team member stress, I unpack how a team is designed to provide a richer picture of how teams affect team member stress. However, these results also suggest avenues for future research. One reason why I did not find significant results for some of my hypotheses may be because the teams in this study were different types of teams and managers did not indicate the specific type of team(s) in their respective establishments. Similarly, other variables that were not measured in this essay may play important roles. For example, a team's climate has been shown to predict the mental health of team members (e.g. Carter & West, 1998) and prior research has found that social support from supervisors can



influence stress (e.g. O'Driscoll & Beehr, 1994). Thus, future research should examine these important moderators.

Future research might also build upon the limitations of the measures used in this study. For example, Warr's (1990) job anxiety-contentment scale was included in WERS, but other measures may be better able to capture different indicators of stress, such as burnout (e.g. Pascual et al., 2003; Pisanti et al., 2003), fatigue (e.g. van Yperen & Hagedoorn, 2003), and general psychological health (e.g. Noblet & Rodwell, 2009; Taris & Feij, 2004; van Yperen & Snijders, 2000). Future research could examine a broader set of indicators of stress in teams, including both physical and psychological indicators. Likewise, although time pressure and workload demands were captured in this essay by one statement, they are not the only types of demands team members experience in their jobs. Future research might attempt to capture a greater variety of job demands experienced by team members using a variety of different measures (e.g. job content measures).

Both of the empirical essays (i.e. essays 2 and 3) also share some limitations. First, both essays use cross-sectional data, precluding the possibility of establishing causality. Future research should focus on how time affects team member deviance and stress. For example, Ashforth et al. (2008) called for studies to answer how and why conformity and deviance is created and developed over time. Although my theoretical model in essay 1 explicitly speaks to this temporal dimension, it cannot be considered valid until it is tested in a longitudinal fashion. Second, both of my empirical essays use samples based in one country. Essay 2 uses a sample of team members in the United States of America, whereas essay 3 uses a sample of team members in Great Britain. The results of each study may not hold when tested in other cultures. For example, Liu, Spector, and Shi (2007) found that American employees were more likely to

report a lack of job control and direct interpersonal conflict as sources of stress, whereas Chinese employees reported that indirect conflict was an important driver of stress. Future research could examine whether the relationships found in my dissertation are applicable to those in other cultures.

In conclusion, my dissertation on the “dark side” of teams begins to help fill important gaps in the literature by focusing on the liabilities side of the “team ledger.” My first essay presents a model of social capital’s influence on team member conformity and deviance via the role and saliency of team mental models, my second essay explores the role of expectations and social capital in explaining team member deviance, and my third essay explores the associations between team design, team member job demands, team member job control, and team member stress. I believe my dissertation not only has a variety of theoretical and managerial implications regarding teams, but also provides a foundation for further exploring the “dark side” of teams.

## APPENDIX

### TEAM MEMBER SURVEY

#### *Deviance*

Since becoming a member of your team, please indicate the extent to which you have engaged in each of the following behaviors (1 = Never to 5 = All of the time;  $\alpha = .89$ ;  $\chi^2(50) = 212.77$ ,  $p = .000$ ; ICC(1) = .48).

1. Make fun of someone at work.
2. Say something hurtful to someone at work.
3. Make an ethnic, religious, or racial remark at work.
4. Curse at someone at work.
5. Play a mean prank on someone at work.
6. Act rudely toward someone at work.
7. Publicly embarrass someone at work.

#### *Expectations*

Based on prior experience with your team members, please indicate the extent to which you expect your team members to engage in each of the following behaviors in the future (1 = Never to 5 = All of the time;  $\alpha = .86$ ;  $\chi^2(50) = 151.51$ ,  $p = .000$ ; ICC(1) = .36).

1. Make fun of someone at work.
2. Say something hurtful to someone at work.
3. Make an ethnic, religious, or racial remark at work.

4. Curse at someone at work.
5. Play a mean prank on someone at work.
6. Act rudely toward someone at work.
7. Publicly embarrass someone at work.

*Tie Strength* ( $\chi^2(50) = 69.89$ ,  $p = .033$ ;  $ICC(1) = .09$ ;  $\text{mean } r_{wg(j)} = .81$ )

1. Please indicate, on average, how close you are with your team members (1 = Distant to 4 = Especially close)
2. Please indicate, on average, how often you talk to your team members (in any social or business discussion; 1 = Less often to 4 = Daily)

#### *Appropriable Organization*

Please indicate, on average, how often you use your team members to help you get things done outside of regular team activities (1 = Less often to 4 = Daily;  $\chi^2(50) = 94.20$ ,  $p = .000$ ;  $ICC(1) = .19$ ;  $\text{mean } r_{wg} = .49$ ).

#### *Shared Codes and Language*

Please indicate the extent to which you agree or disagree with each of the following statements (1 = Strongly disagree to 5 = Strongly agree;  $\alpha = .71$ ;  $\chi^2(50) = 84.49$ ,  $p = .002$ );  $ICC(1) = .15$ ;  $\text{mean } r_{wg(j)} = .88$ ).

1. I share the same code as my team members to talk about work.
2. I have trouble understanding my team members when we work together.
3. I know something about each team member's area of expertise.

4. I am always on the same page with my team members when we talk about work.
5. I have difficulty understanding the jargon used by my team members.
6. I have trouble following my team members when we talk about work.

### *Shared Narratives*

Please indicate the extent to which you agree or disagree with each of the following statements

(1 = Strongly disagree to 5 = Strongly agree;  $\alpha = .83$ ;  $\chi^2(50) = 72.63$ ,  $p = .020$ ; ICC(1) = .10; mean  $r_{wg(j)} = .89$ ).

1. I often talk about common experiences with my team members.
2. I often talk about common team experiences with new team members.
3. I often talk about common experiences with my team members when I am trying to resolve a conflict within my team.
4. I often talk about common experiences with my team members when I am trying to solve a problem.

### *Trust*

Please indicate the extent to which you agree or disagree with each of the following statements

(1 = Strongly disagree to 5 = Strongly agree;  $\alpha = .86$ ;  $\chi^2(50) = 111.84$ ,  $p = .000$ ; ICC(1) = .23; mean  $r_{wg(j)} = .86$ ).

1. I trust my team members.
2. I feel comfortable delegating to my team members.
3. I believe my team members are truthful and honest.

### *Obligations*

Please indicate the extent to which you agree or disagree with each of the following statements

(1 = Strongly disagree to 5 = Strongly agree;  $\alpha = .68$ ;  $\chi^2(50) = 98.11$ ,  $p = .000$ ;  $ICC(1) = .19$ ; mean  $r_{wg(j)} = .84$ ).

1. I usually do not forget if I owe my team members a favor or if they owe me a favor.
2. When helping my team members, I often try to remember how much they helped me in the past.
3. If I tell my team members about my private affairs, I expect them to tell me something about theirs.
4. If I praise my team members for their accomplishments, I expect them to praise me for mine as well.
5. I don't like team members who don't fulfill their obligations to me.
6. When I am working with my team members, I am usually aware of how much work I am doing in relation to them.
7. When I say hello to team members, I get annoyed if they make no response or give me a weak nod.

### *Identification*

Please indicate the extent to which you agree or disagree with each of the following statements

(1 = Strongly disagree to 5 = Strongly agree;  $\alpha = .75$ ;  $\chi^2(50) = 87.87$ ,  $p = .001$ ;  $ICC(1) = .16$ ; mean  $r_{wg(j)} = .90$ ).

1. I strongly identify with the other members of my team.
2. I would like to continue working with my team.

3. I dislike being a member of my team.
4. I feel emotionally attached to my team.

*Gender*

Please indicate your gender (0 = Male, 1 = Female).

*Age*

Please indicate your age (in years; 1 = Less than 20 to 6 = 60+).

*Education*

Please indicate your highest level of education (1 = Some high school to 6 = Doctoral degree or equivalent).

*Organizational Tenure*

Please indicate approximately how long you have worked for this organization (1 = Less than 1 year to 6 = 21+ years).

*Team Tenure*

Please indicate how long you have worked in your team (1 = Less than 1 month to 6 = More than 2 years)

### *Intrateam Conflict*

Please answer each of the following questions (1 = None to 5 = A lot;  $\alpha = .91$ ;  $\chi^2(50) = 82.62$ ,  $p = .003$ ;  $ICC(1) = .15$ ;  $\text{mean } r_{wg(j)} = .92$ ).

1. How much friction is there among members in your team?
2. How much are personality conflicts evident in your team?
3. How much tension is there among member in your team?
4. How much emotional conflict is there among members in your team?
5. How often do people in your team disagree about opinions regarding the work being done?
6. How frequently are there conflicts about ideas in your team?
7. How much conflict about the work you do is there in your team?
8. To what extent are there differences of opinion in your team?



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